

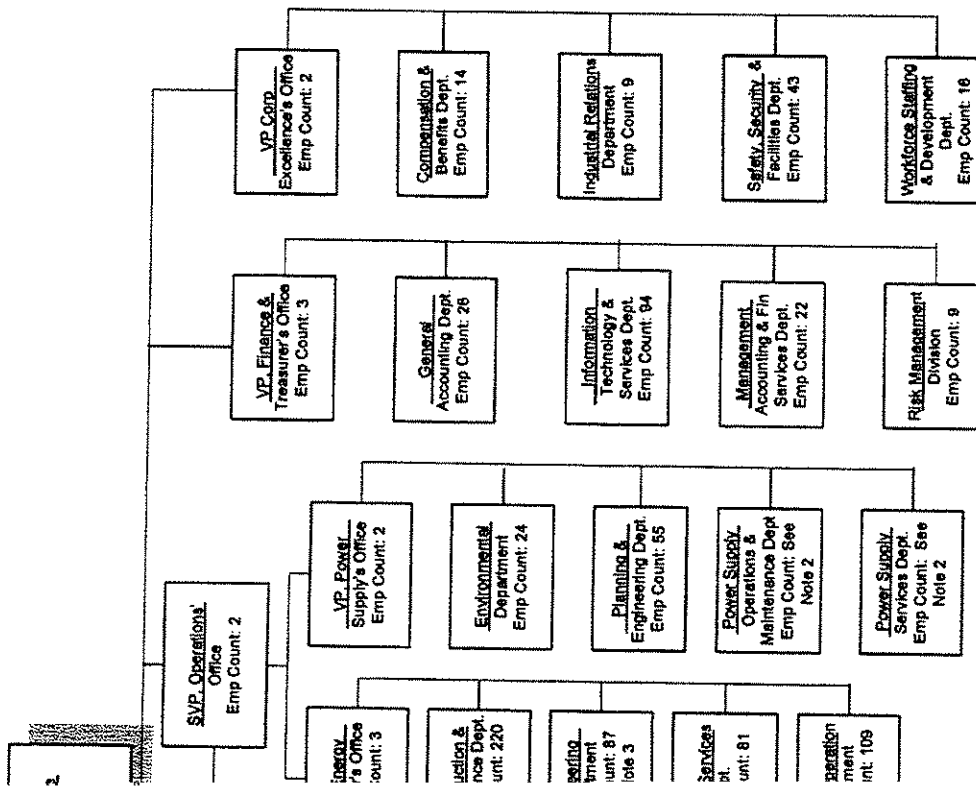
CA-IR-3

Please provide a complete copy of the most current available HECO management organization chart, illustrating reporting relationships among management personnel, departmental organizations and relative staffing levels within each department.

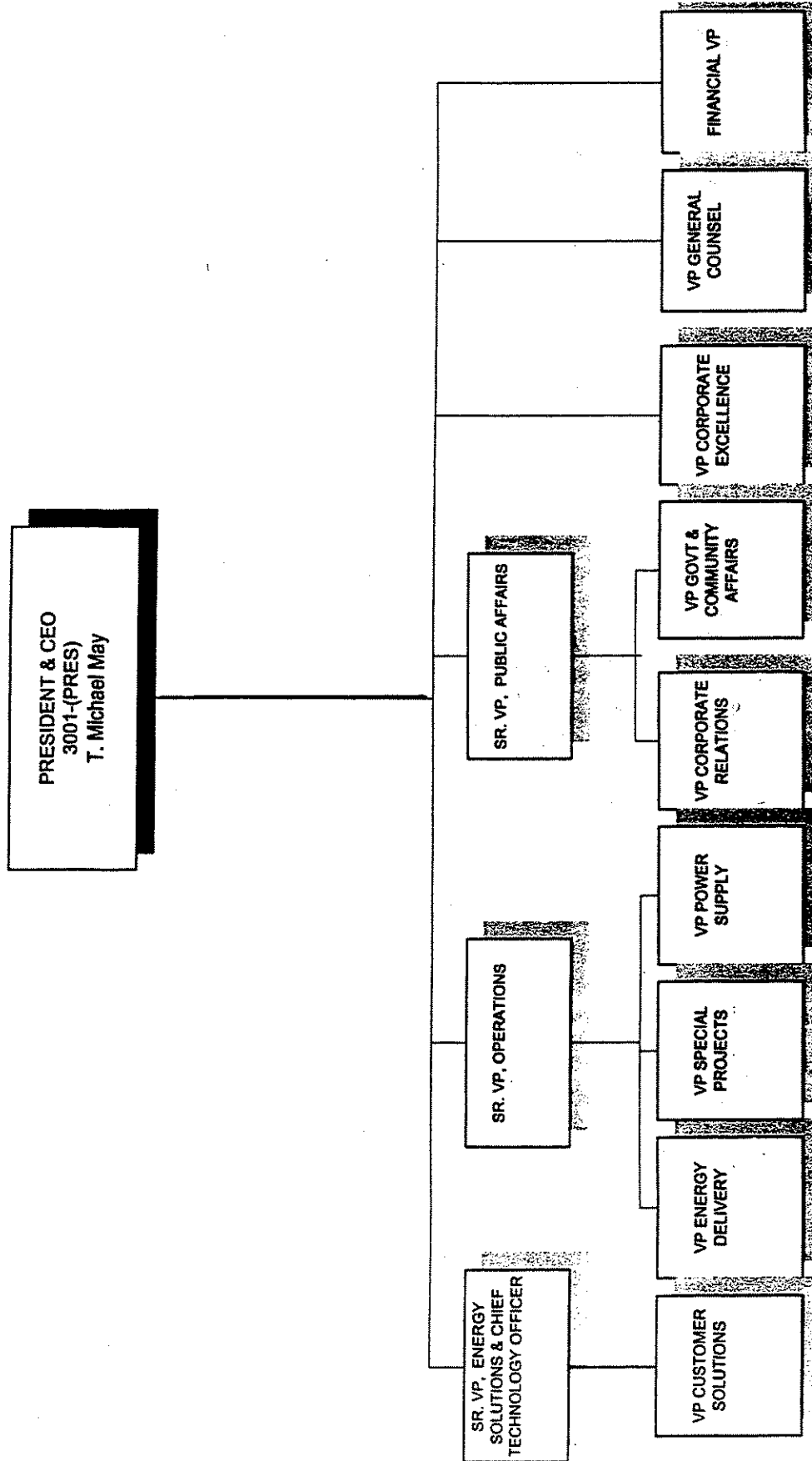
HECO Response:

See the attached management organization chart on page 2 of this response that ties with the average employee count for the 2005 test year budget as shown on HECO-1612. For the most current available management organization charts as of January 2005, see pages 3 to 15 of this response. The employee counts shown on pages 3 to 15 reflect the actual staffing levels as of December 31, 2004. (See also responses to CA-IR-9 for copy of the Employee Count by Department/Division within VP Function Report as of 12/31/2004, CA-IR-71 for updated HECO-WP-811 - Summary of Average Employees, and CA-IR-331, part b. for copies of the Employee Count by Department/Division within VP Function Report as of 1/31/05, and 2/28/05.)

Company, Inc.

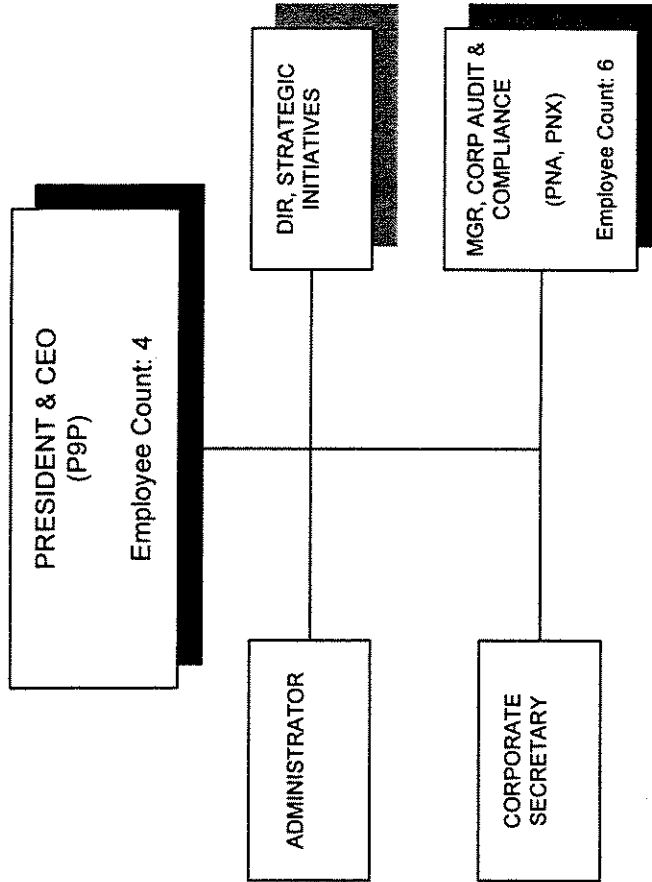


HAWAIIAN ELECTRIC COMPANY, INC.



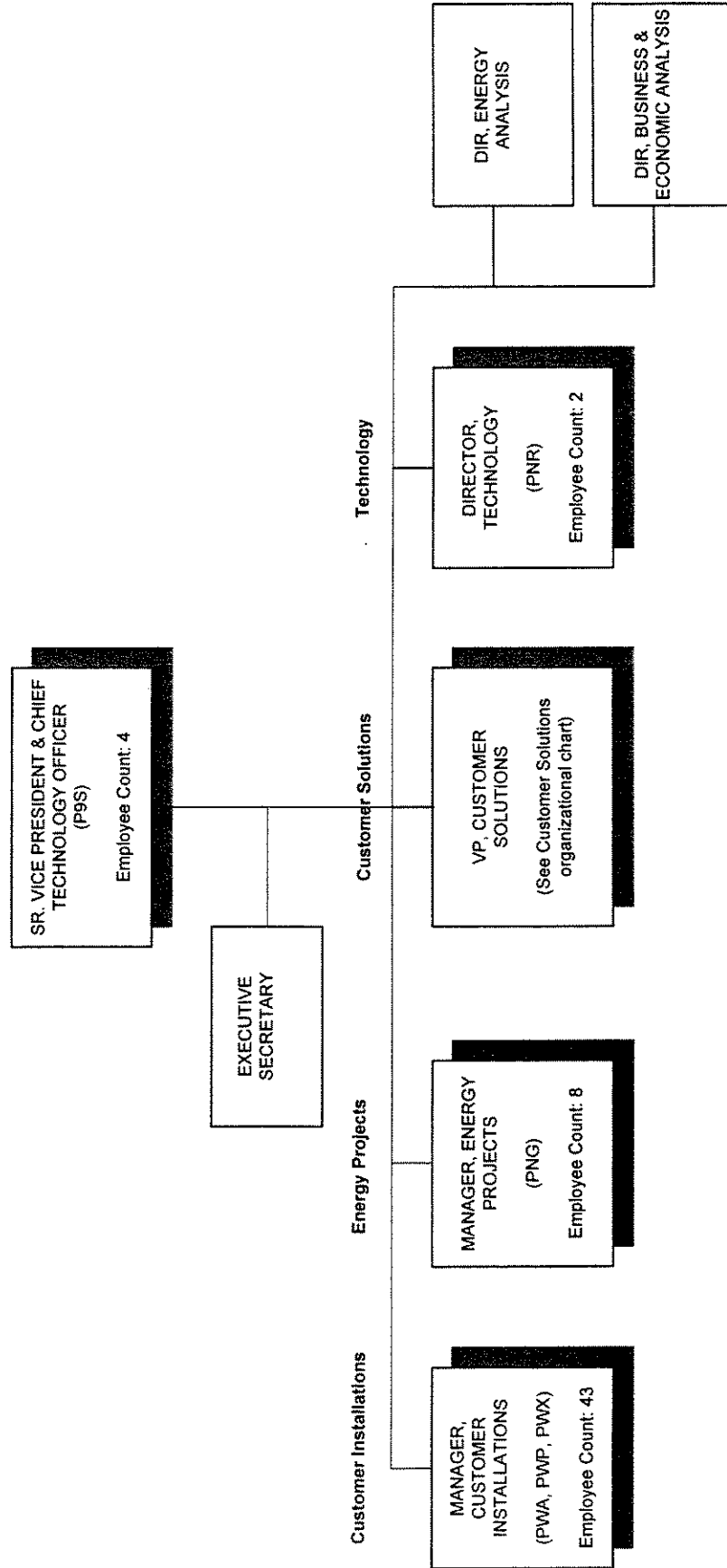
PRESIDENT - HECO

Actual employee count as of 12/31/04



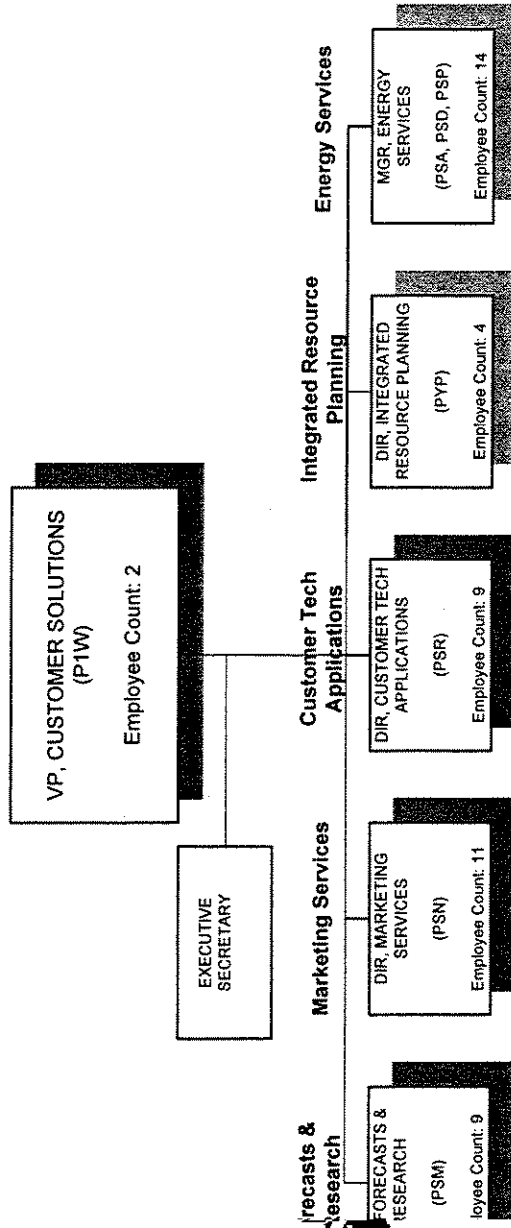
SR. VICE PRESIDENT ENERGY SOLUTIONS

Actual employee count as of 12/31/04



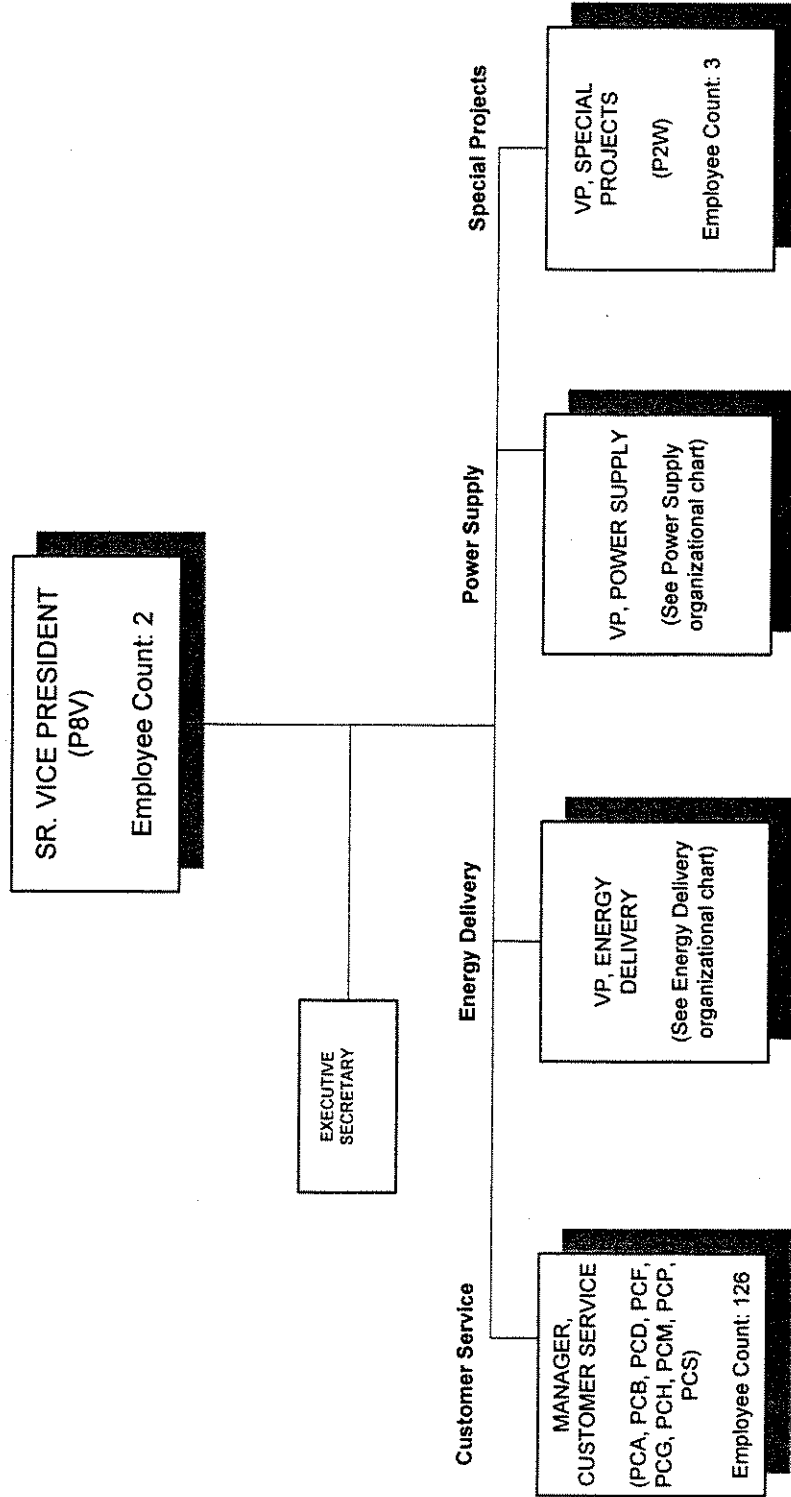
CUSTOMER SOLUTIONS

Actual employee count as of 12/31/04



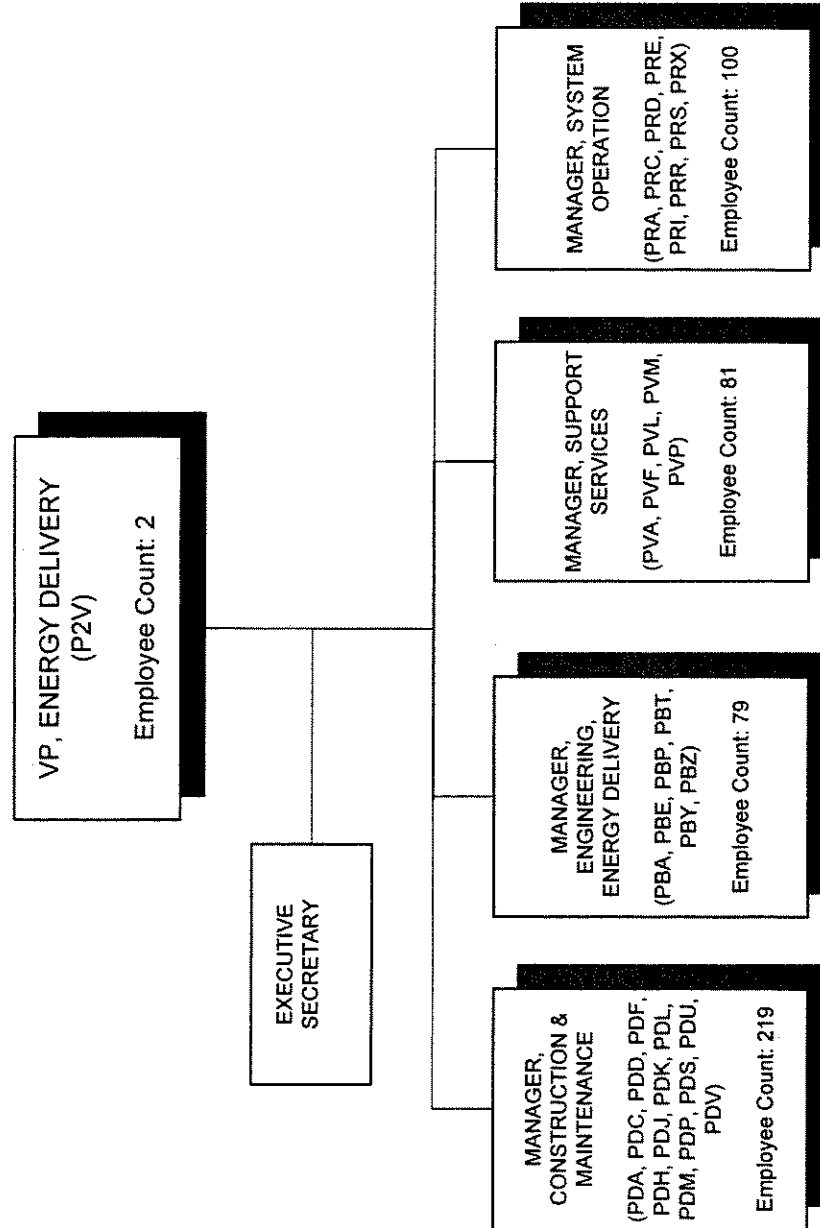
SR. VICE PRESIDENT OPERATIONS

Actual employee count as of 12/31/04



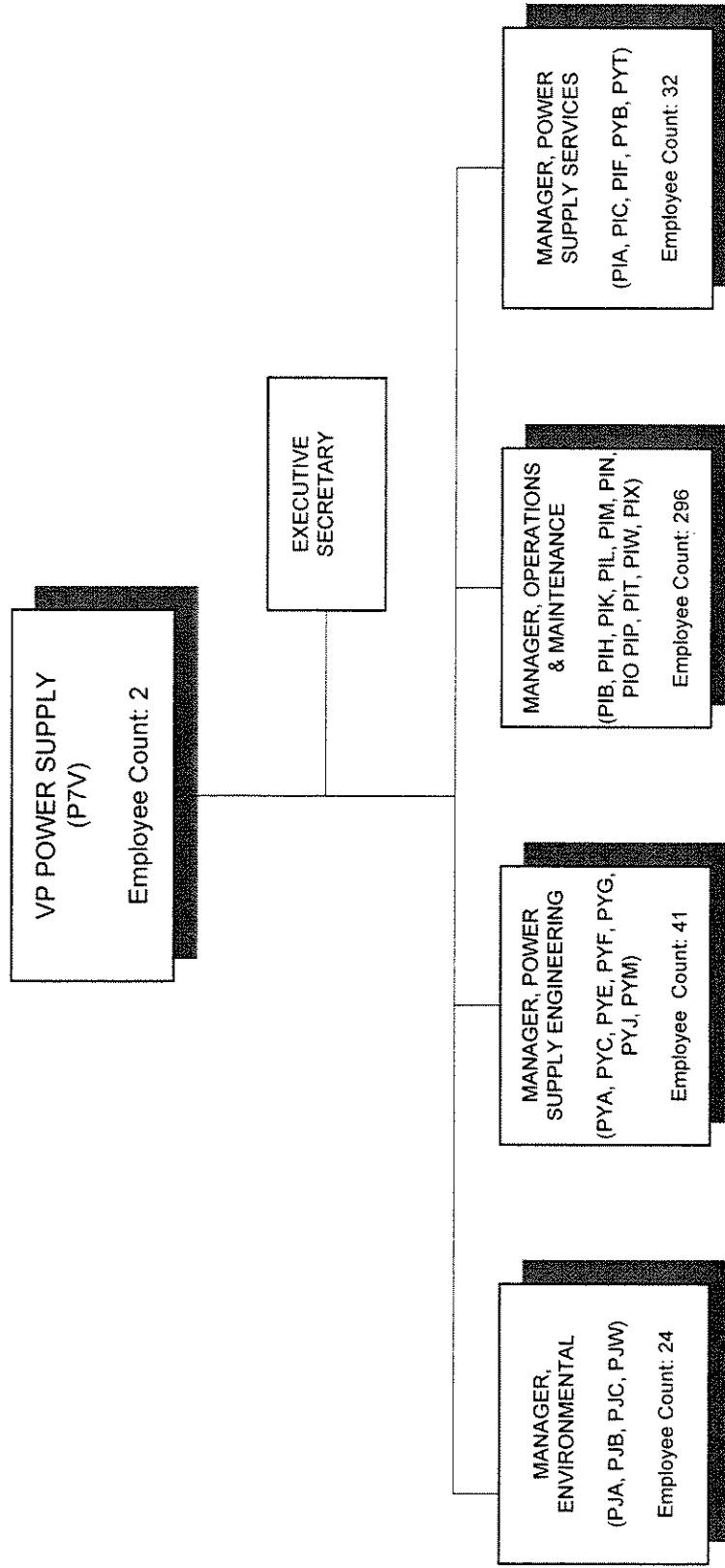
ENERGY DELIVERY

Actual employee count as of 12/31/04



POWER SUPPLY

Actual employee count as of 12/31/04



IT PUBLIC AFFAIRS

Count as of 12/31/04

RESIDENT
Count: 2

Internal Relations

GOVT
COUNTS
Count: 3

Corporate Relations

VP, CORPORATE
RELATIONS
(See Corporate
Relations organizational
chart)

GOVERNMENT & COMMUNITY AFFAIRS

Actual employee count as of 12/31/04

VP, GOVERNMENT &
COMMUNITY AFFAIRS
(P3V)
Employee Count: 7

EXECUTIVE
SECRETARY

Regulatory Affairs (PNP)

DIRECTOR,
REGULATORY
AFFAIRS

Employee Count: 5

EXEC STAFF
ASSISTANT

DIRECTOR,
COMMUNITY
RELATIONS

PUBLIC AFFAIRS
SPECIALIST

DIRECTOR,
EDUCATION &
CONSUMER AFFAIRS

Employee Count: 6

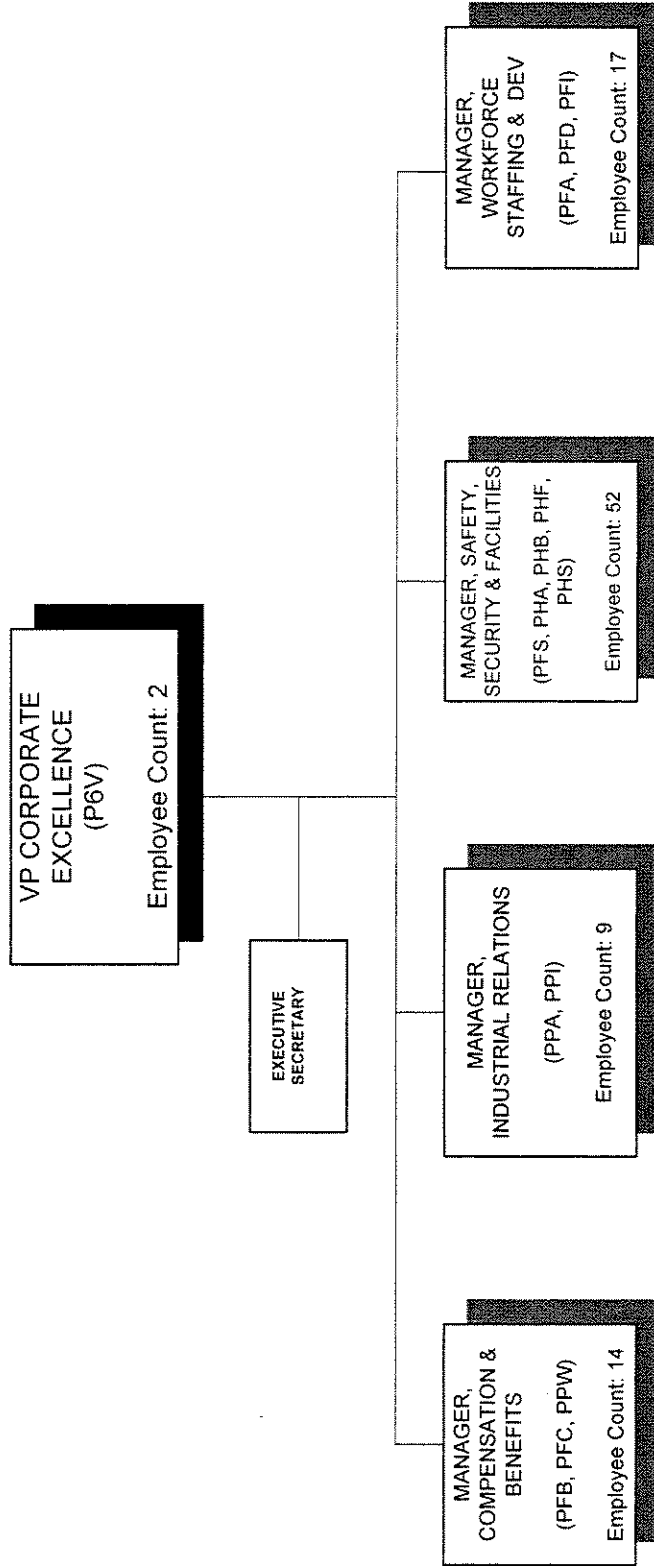
Education & Consumer Affairs (PQE)

RELATIONS
of 12/31/04

QC)

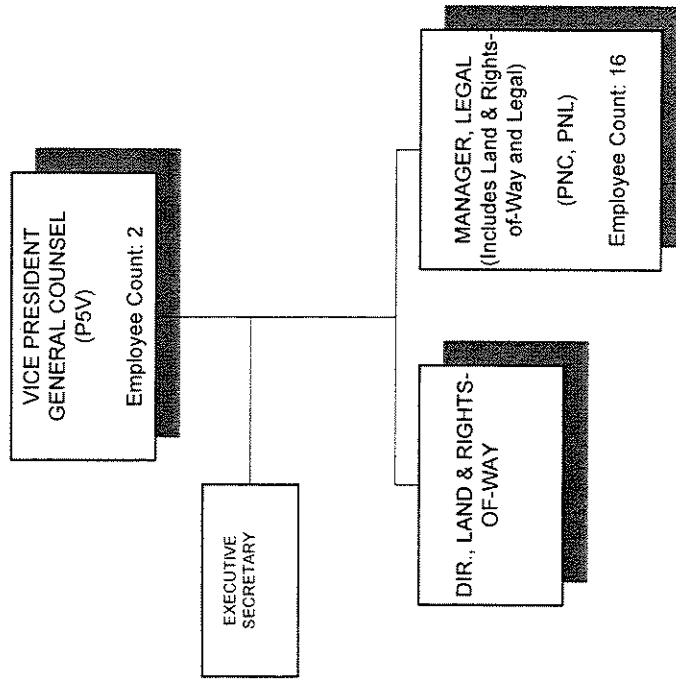
CORPORATE EXCELLENCE

Actual employee count as of 12/31/04



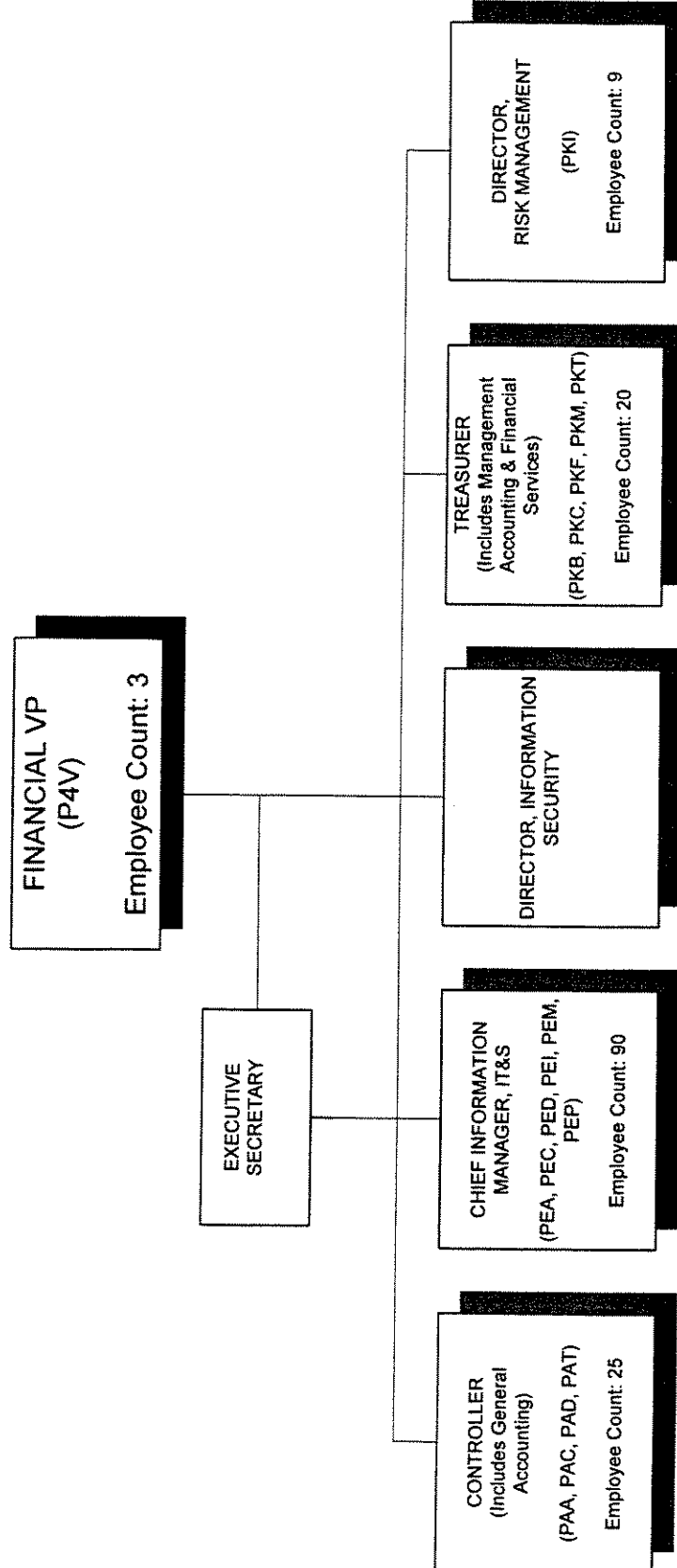
GENERAL COUNSEL

Actual employee count as of 12/31/04



FINANCE

Actual employee count as of 12/31/04

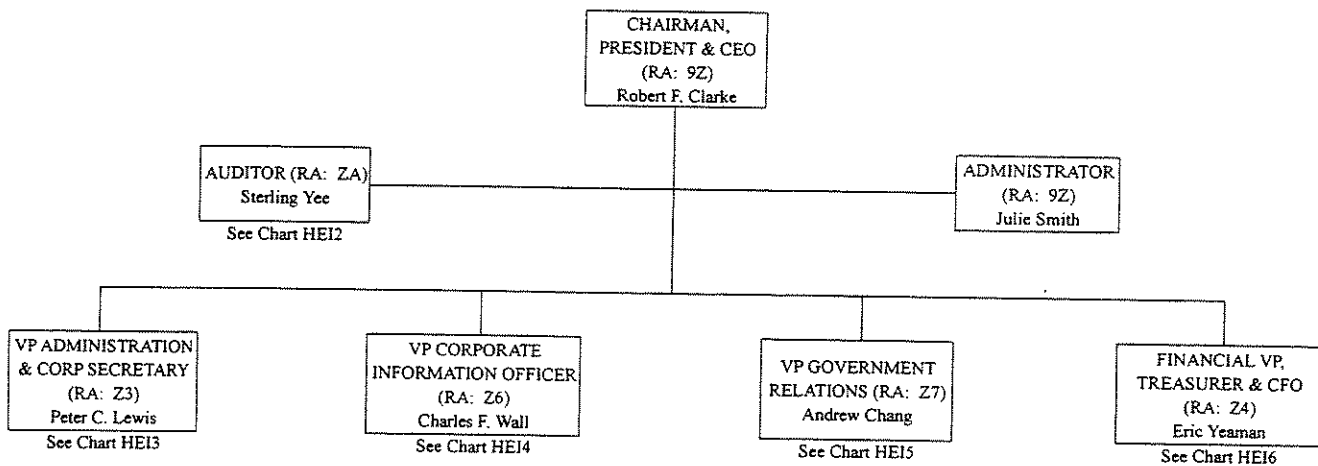


CA-IR-4

Please provide a complete copy of the most current available Hawaiian Electric Industries

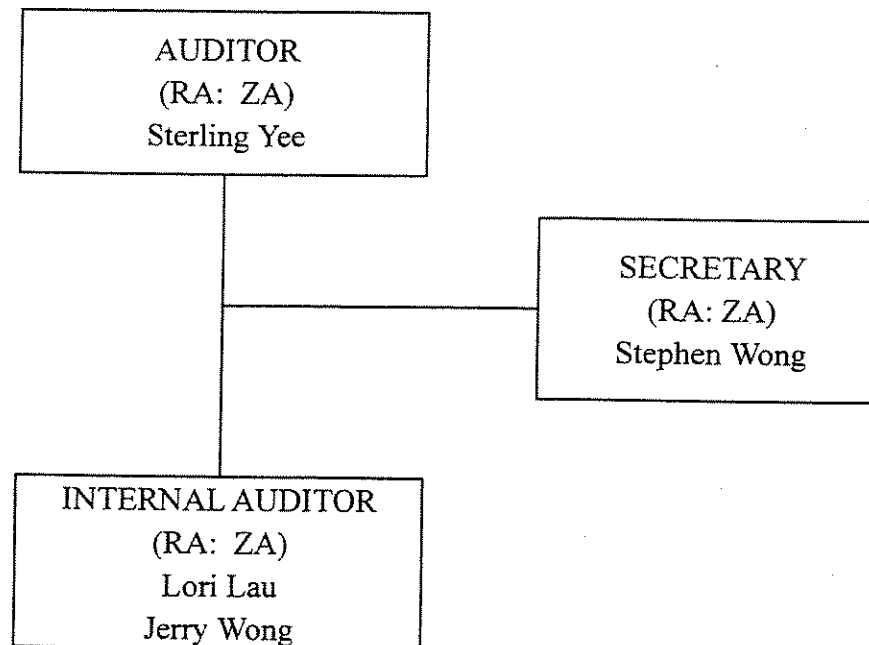
HAWAIIAN ELECTRIC INDUSTRIES, INC.

RA 9Z (2 employees) other RAs shown on Charts HEI2 through HEI6



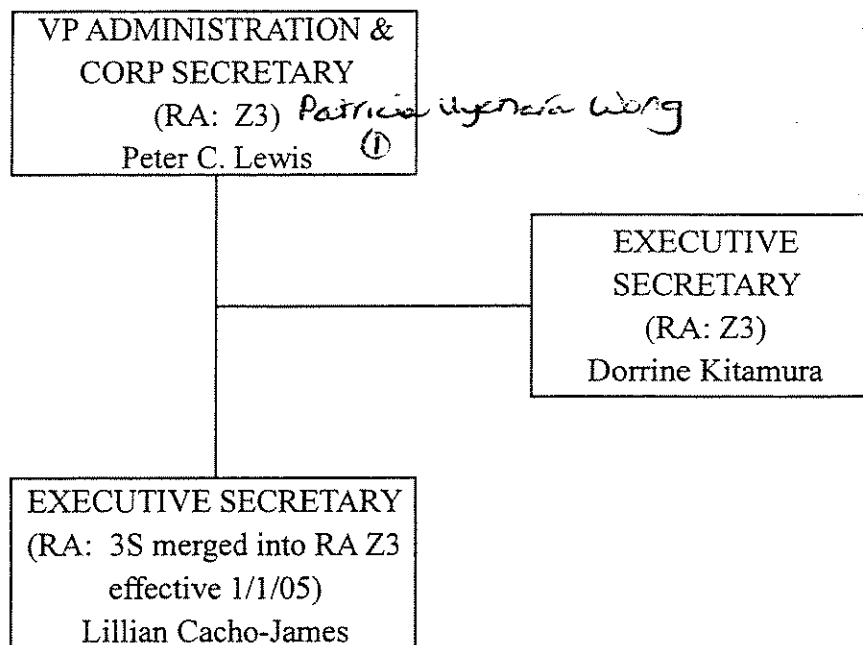
INTERNAL AUDIT

RA ZA: 4 employees



ADMINISTRATION

RA Z3: 3 employees



① Peter C. Lewis to retire on April 26, 2005.

INFORMATION TECHNOLOGY
RA Z6: 6 employees

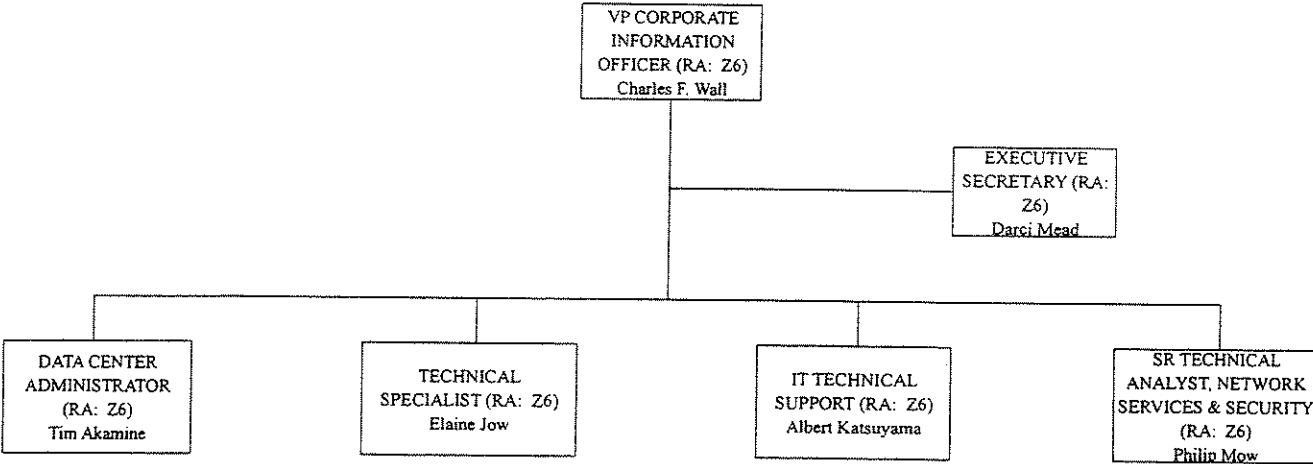
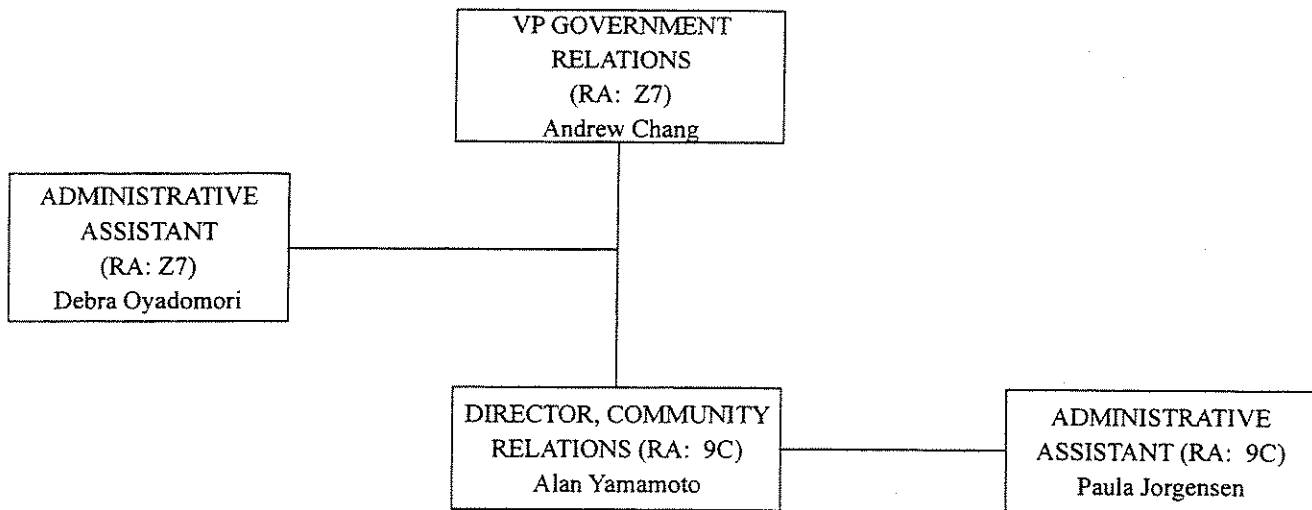


Chart HEI4

GOVERNMENT & COMMUNITY RELATIONS

RAs Z7 (2 employees) & 9C (2 employees)



FINANCE

RAs Z4 (2 employees), 4C (shown on Chart HEI6a), 4P (7 employees), TI (shown on Chart HEI6b)

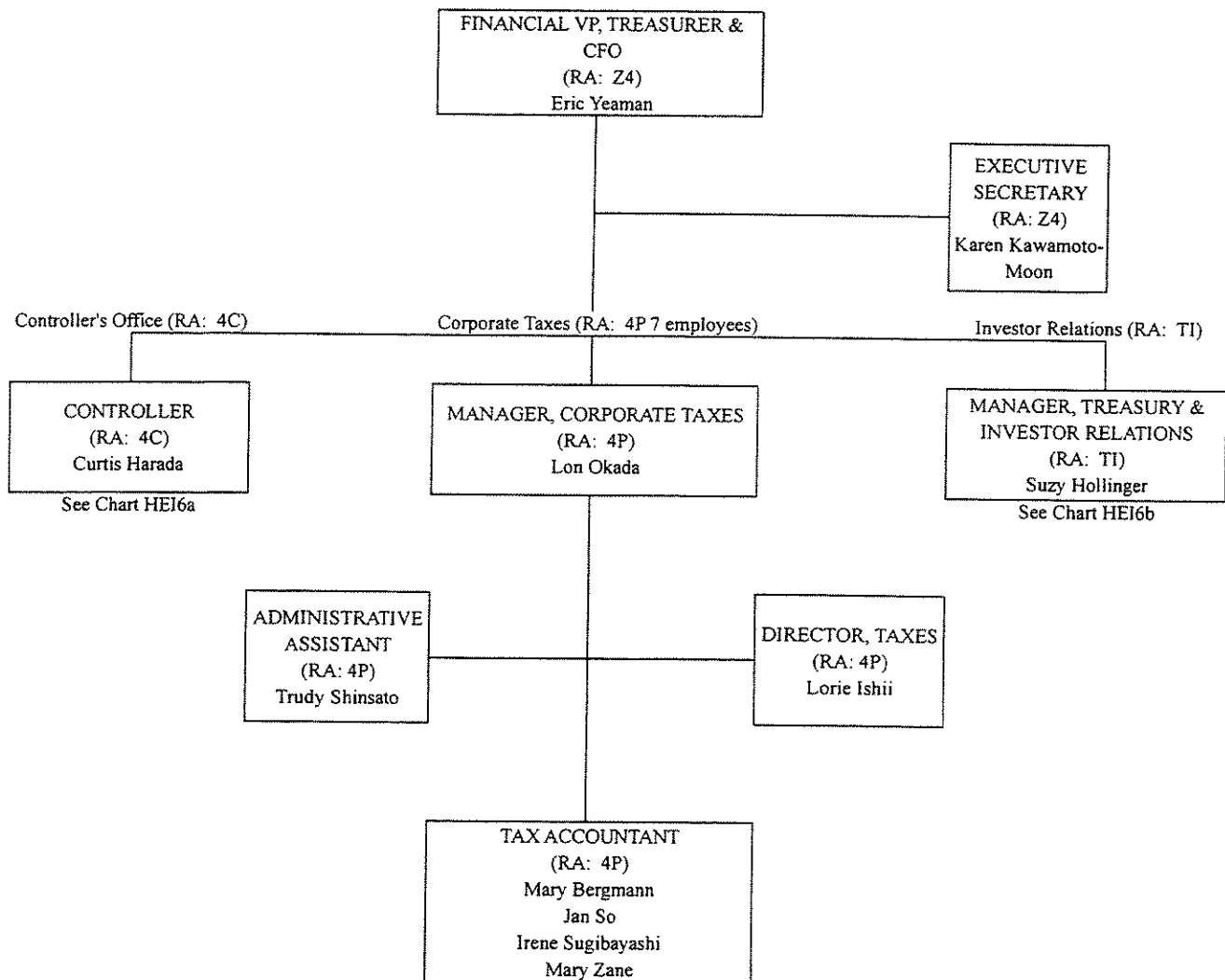
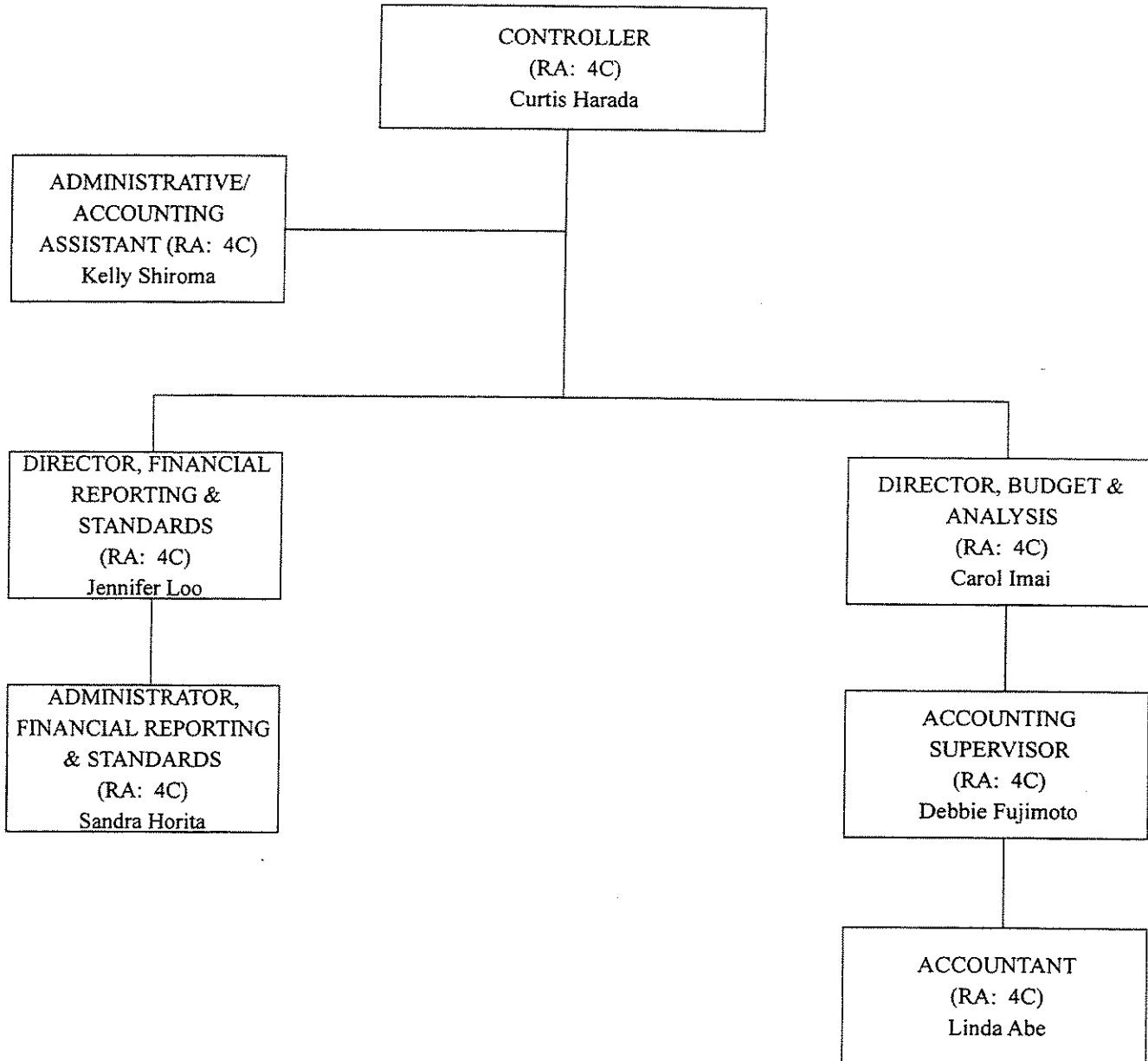


Chart HEI6

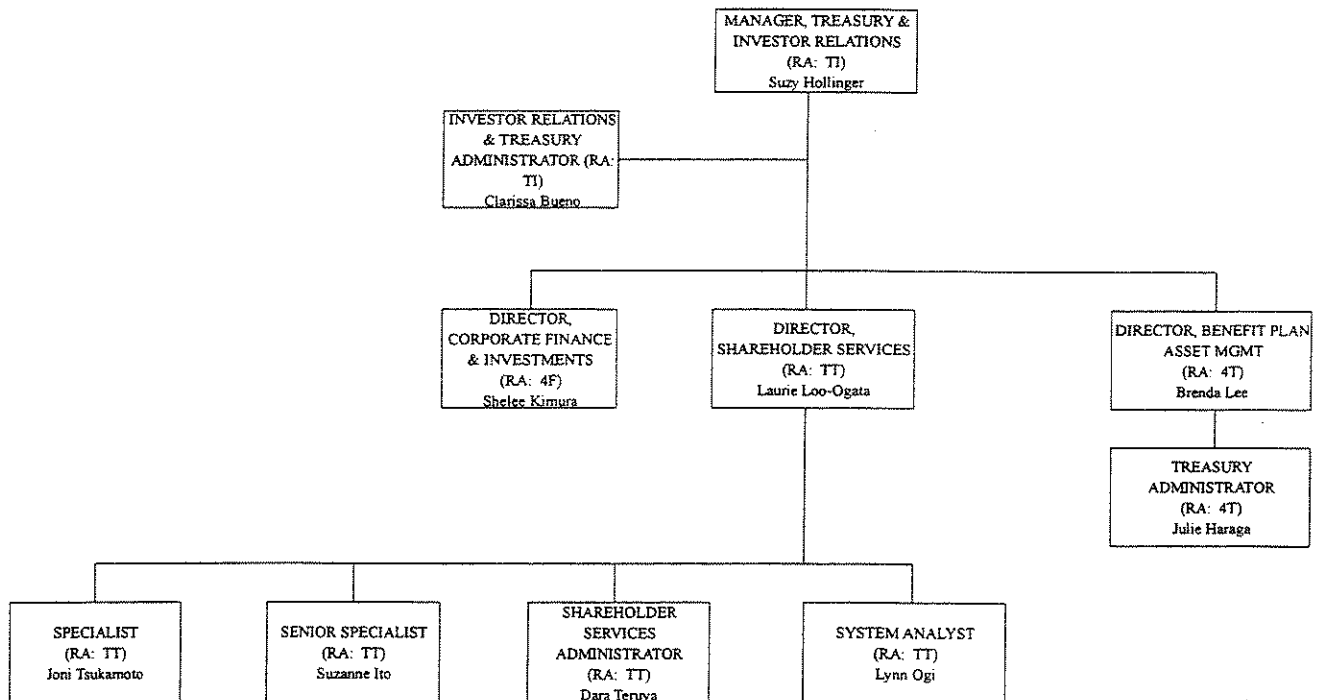
CONTROLLER'S OFFICE

RA 4C: 7 employees



INVESTOR RELATIONS

RA s TI (2 employees), 4F (1 employee), TT (5 employees) and 4T (2 employees)



HEI CHARGES TO HECO (activities consistent with HECO-1310)

Activity code	ACTIVITY CODE DESCRIPTIONS	HEI Employees that support HECO operations and the activities provided
ACC	Accounting	Finance employees and the HEI President who is also HECO's Chairman of the Board
ACC 001	Research accounting issues	
ACC 004	Maintain general ledger	
ACC 008	Analyze financial results	
ACC 009	Monitor accounting and reporting standards	
ACC 011	Preparation of audit workpapers	
ACC 014	Maintain depreciation schedules	
ACC 018	Intercompany billing administration	
ADM	Administrative	HEI President who is also HECO's Chairman of the Board, VP Administration and the Financial VP
ADM 007	Corporate risk review	
ANN	Annual meeting	Finance and Administration employees and the HEI President who is also HECO's Chairman of the Board
ANN 001	Annual shareholder meeting planning & coordination	
AUD	Audits	HEI President who is also HECO's Chairman of the Board, VP Administration (records minutes of the joint HEI/HECO audit committee meeting), Financial VP and Controller
AUD 004	Audit Committee meeting preparation	
AUD 005	Audit Committee meeting attendance	
BOD	Board of Directors	Primarily Administration employees and the HEI President who is also HECO's Chairman of the Board
BOD 001	Board of Directors meetings	
BOD 002	Attendance (presentations)	
BOD 005	Misc. board matters	
BUD	Budgets	HEI President who is also HECO's Chairman of the Board
BUD 002	Attendance (presentations)	
CAS	Cash Management	Internal audit employees (perform initial wire confirmation set-up)
CAS 006	Cash disbursements (wire confirmations)	
CON	Consulting - general	Primarily the HEI President who is also HECO's Chairman of the Board
CON 002	Meetings	
CON 004	Other	
FIN	Financing	Finance employees
FIN 001	Debt financing planning and coordination	
FIN 002	Debt financing due diligence	
HUM	Human Resources	Administration & Finance employees and the HEI President who is also HECO's Chairman of the Board
HUM 001	Benefits consulting services	
HUM 002	Compensation consulting services	
HUM 003	Personnel issues	
HUM 005	Employee benefit consulting	
HUM 009	Code of Conduct review	
HUM 010	Compensation committee meetings	
HUM 011	Long-term incentive plan (LTIP)	
HUM 012	Executive incentive compensation plan (EICP)	
HUM 013	Stock options with dividend equivalents	
HUM 014	Stock options	
HUM 015	Executives deferred compensation	
HUM 018	Other incentive compensation consulting services	

HEI CHARGES TO HECO (activities consistent with HECO-1310)

Activity code	ACTIVITY CODE DESCRIPTIONS	HEI Employees that support HECO operations and the activities provided
INV	Investor Relations	Finance employees (primarily from the Investor Relations area) and the HEI President's office (HEI President is also HECO's Chairman of the Board)
INV 001	Analyst/media communications	
INV 002	Broker meetings	
INV 003	Fact sheet	
INV 004	Financial mailing list	
INV 005	Financial news releases	
INV 006	Group analyst meetings	
INV 007	HEI stock - share forecast	
INV 008	Investor base/stockholder monitoring	
INV 009	Investor relations planning	
INV 012	One-on-one meetings/visits with analysts	
INV 013	Other investor relations activities	
INV 015	Retail/broker/shareholder communications	
INV 018	Statistical supplement	
INV 019	Surveys	
INV 020	Teleconferencing	
INV 022	Investor Relations-Sarbanes Oxley Related Charges	
PEN	Pension plan	Finance and Administration employees and the HEI President's office (HEI President is also HECO's Chairman of the Board)
PEN 005	HEIRS	
PEN 007	HEI Retirement Plan	
PEN 009	Master pension trust	
PEN 010	Pension-Sarbanes Oxley Related Charges	
PEN 024	Nonpension Postretirement Benefit Plans/Trusts	
PEN 026	OPEB funded plans/trusts	
PEN 028	HECO OPEB Plan	
PEN 030	HEI postretirement electric discount trust	
RPT	Reports	Finance and Administration employees and the HEI President's office (HEI President is also HECO's Chairman of the Board)
RPT 001	10K preparation	
RPT 005	10K printing and mailing	
RPT 011	10Q preparation	
RPT 015	10Q printing and mailing	
RPT 021	8K preparation	
RPT 039	Other government reports	
RPT 041	Proxy preparation	
RPT 044	Proxy-Sarbanes Oxley Related Charges	
RPT 045	Proxy printing and mailing	
RPT 051	Annual report preparation	
RPT 055	Annual report printing and mailing	
RPT 098	Financial Reporting-Sarbanes Oxley Related Charges	
RPT 099	Other reports	
STO	Stock Transfer activities	Finance employees (primarily from the Shareholder Services area) and the Internal Audit Secretary (who is the HEI Registrar for common stock).
STO 001	Preferred stock dividend payments	
STO 003	Form 1099 (for preferred stockholders)	
STO 004	Preferred stockholder database maintenance	
STO 005	Other preferred stock communications	
STO 006	Preferred stock transfer administrative activities	
STO 011	Common stock dividend payments	
STO 012	HEI Dividend Reinvestment program administration	
STO 013	Form 1099 Dividends	
STO 014	Common stockholder database maintenance	
STO 015	Other common stock communications	
STO 016	Common stock transfer administrative activities	
STO 018	Stock transfer system	
STO 019	Stock transfer division expenses	
STO 020	Stock transfer division miscellaneous income	
STO 021	Stock Transfer Division-Sarbanes Oxley Related Charges	
TAX	Tax	Finance employees (primarily from the Tax area)
TAX 001	Tax return preparation	
TAX 002	Tax return review	
TAX 003	Tax and financial planning	
TAX 006	Tax research	
TAX 007	Tax accrual review	
TAX 008	Tax compliance software implementation	
TAX 009	Assistance on the IRS/State examination	
TAX 010	Information returns	
TAX 011	IRS/Dept. of Taxation correspondence	
TAX 012	Estimated tax computation	
TAX 013	General excise tax returns	
TAX 014	Payroll tax withholding	
TAX 017	Other tax matters	
TAX 018	Executive payroll issues	
TAX 019	Taxes-Sarbanes Oxley Related Charges	

CA-IR-5

Please provide in hard copy and electronic media a complete table of HECO and HEI Departmental and Responsibility Area "RA" reporting structure documentation, showing RA descriptions and indicating how each department/RA is aligned with the HECO and HEI organization charts provided in response to the preceding two information requests.

HECO Response:

For HECO, the requested information is provided on pages 2 through 4 to this response. For HEI, please refer to the HEI management organization charts provided in response to CA-IR-4, on pages 2 through 9. The RA and descriptions are noted on the management organizational charts.

HECO

Listing of Responsibility Areas and Rollups

*RA #	Resp Area	Dept	VP	President
P1V	VP-Corp Relations	VP-Corp Relations	VP-Corp Relations	President
P1W	VP-Cust Solutions	VP-Cust Sol	Cust Sol	President
P2V	VP-Energy Delivery	VP-Energy Delivery	VP-Energy Delivery	President
P2W	VP-Special Projects	VP-Spec Proj	Spec Projects	President
P3V	VP-Govt & Comm Affairs	VP-Govt & Comm Aff	VP-Govt & Comm Aff	President
P4V	Financial VP	Financial VP	Financial VP	President
P5V	VP-Gen Counsel	VP-Gen Counsel	Gen Counsel	President
P6V	VP-Corp Excellence	VP-Corp Excellence	VP-Corp Excellence	President
P7V	VP-Power Supply	VP-Power Supply	VP-Power Supply	President
P8M	Miscellaneous	Miscellaneous	Miscellaneous	President
P8V	Sr VP-Operations	Operations	Operations	President
P9P	President	President	Pres	President
P9S	Sr VP-Energy Solutions	SVP-En Sol	En Sol	President
P9V	Sr VP-Public Affairs	Public Affairs	Public Affairs	President
PAA	Admin-Gen Acctg	General Accounting	Financial VP	President
PAC	Corp Accounting	General Accounting	Financial VP	President
PAD	Cost Accounting	General Accounting	Financial VP	President
PAT	Property Accounting	General Accounting	Financial VP	President
PBA	Admin-ED Engr	Engineering	VP-Energy Delivery	President
PBE	T&D Engineering	Engineering	VP-Energy Delivery	President
PBP	Project Mgt Division	Engineering	VP-Energy Delivery	President
PBT	Structural	Engineering	VP-Energy Delivery	President
PBY	Substn, Protect & Tel	Engineering	VP-Energy Delivery	President
PBZ	T&D Technical Svcs	Engineering	VP-Energy Delivery	President
PCA	Admin-Cust Svc	Customer Service	Operations	President
PCB	Cust Acctg & Bill	Customer Service	Operations	President
PCD	Credit	Customer Service	Operations	President
PCF	Customer Field Services	Customer Service	Operations	President
PCG	Fld Svc & Collection	Customer Service	Operations	President
PCH	Customer Assist Ctr	Customer Service	Operations	President
PCM	Meter Reading	Customer Service	Operations	President
PCP	Pmt Proc & Supp Ctr	Customer Service	Operations	President
PCS	Customer Acct Svcs	Customer Service	Operations	President
PDA	Admin-C&M	Constr & Maint	VP-Energy Delivery	President
PDC	Control Section	Constr & Maint	VP-Energy Delivery	President
PDD	Training Section	Constr & Maint	VP-Energy Delivery	President
PDF	Field Operation	Constr & Maint	VP-Energy Delivery	President
PDH	Customer Demand	Constr & Maint	VP-Energy Delivery	President
PDJ	West Overhead	Constr & Maint	VP-Energy Delivery	President
PDK	East Overhead-Koolau	Constr & Maint	VP-Energy Delivery	President
PDL	East Overhead-Ward	Constr & Maint	VP-Energy Delivery	President
PDM	Maint Demand Div	Constr & Maint	VP-Energy Delivery	President
PDP	Planning	Constr & Maint	VP-Energy Delivery	President
PDS	Supply Division	Constr & Maint	VP-Energy Delivery	President
PDT	Transmission & Trng	Constr & Maint	VP-Energy Delivery	President
PDU	Underground	Constr & Maint	VP-Energy Delivery	President
PDV	Vegetation Management	Constr & Maint	VP-Energy Delivery	President
PDZ	System Demand	Constr & Maint	VP-Energy Delivery	President
PEA	Admin-Info Tech&Svcs	Info Tech & Svcs	Financial VP	President
PEC	Customer Care	Info Tech & Svcs	Financial VP	President
PED	Development Svcs	Info Tech & Svcs	Financial VP	President
PEI	Infrastruct & Oper	Info Tech & Svcs	Financial VP	President
PEM	Mailing Services	Info Tech & Svcs	Financial VP	President
PEP	Project & Bus Mgt	Info Tech & Svcs	Financial VP	President
PER	Publish & Recds Svcs	Info Tech & Svcs	Financial VP	President
PEZ	ISD Chargeback	Info Tech & Svcs	Financial VP	President
PFA	Admin-WFS & Dev	Workfce Staff & Dev	VP-Corp Excellence	President

HECO
Listing of Responsibility Areas and Rollups

*RA #	Resp Area	Dept	VP	President
PFB	Employee Benefits	Comp & Benefits	VP-Corp Excellence	President
PFC	Compensation	Comp & Benefits	VP-Corp Excellence	President
PFD	Client Svcs & Consult	Workfce Staff & Dev	VP-Corp Excellence	President
PFI	Ora Development	Workfce Staff & Dev	VP-Corp Excellence	President

PFS	Corporate Safety	Sfty Sec & Facil	VP-Corp Excellence	President
PHA	Admin-Facilities	Sfty Sec & Facil	VP-Corp Excellence	President
PHB	Facilities Operation	Sfty Sec & Facil	VP-Corp Excellence	President
PHF	Facilities Planning	Sfty Sec & Facil	VP-Corp Excellence	President
PHS	Security	Sfty Sec & Facil	VP-Corp Excellence	President
PIA	Admin-PS Services	Production	VP-Power Supply	President
PIB	Admin-PS O&M	Production	VP-Power Supply	President
PIC	Power Purchase	Production	VP-Power Supply	President
PIF	Fuel Resources	Production	VP-Power Supply	President
PIH	Honolulu Stn Oper	Production	VP-Power Supply	President
PIK	Kahe Stn Oper	Production	VP-Power Supply	President
PIL	Kahe Stn Maint	Production	VP-Power Supply	President
PIM	Maintenance Admin	Production	VP-Power Supply	President
PIN	Honolulu Stn Maint	Production	VP-Power Supply	President
PIO	Operations Admin	Production	VP-Power Supply	President
PIP	Planning	Production	VP-Power Supply	President
PIT	Traveling Maintenance	Production	VP-Power Supply	President
PIW	Waiau Stn Oper	Production	VP-Power Supply	President
PIX	Waiau Stn Maint	Production	VP-Power Supply	President
PJA	Admin-Environ	Environmental	VP-Power Supply	President
PJB	Air Quality & Noise	Environmental	VP-Power Supply	President
PJC	Chemistry	Environmental	VP-Power Supply	President
PJW	Water & Haz Mat	Environmental	VP-Power Supply	President
PKB	Admin-MgtAcc FinSvc	Mgt Acctg & Fin Svcs	Financial VP	President
PKC	Budgets	Mgt Acctg & Fin Svcs	Financial VP	President
PKF	Financial Analysis	Mgt Acctg & Fin Svcs	Financial VP	President
PKI	Risk Management	Risk Mngement	Financial VP	President
PKM	ERP Administration	Mgt Acctg & Fin Svcs	Financial VP	President
PKT	Treasury	Mgt Acctg & Fin Svcs	Financial VP	President
PNA	Internal Audit	Corp Audit & Complnc	Pres	President
PNC	Legal	Legal	Gen Counsel	President
PNG	EnergyProjects	Energy Projects	En Sol	President
PNI	Government Relations	Government Relations	Public Affairs	President
PNL	Land & Rights of Way	Legal	Gen Counsel	President
PNP	Regulatory Affairs	Regulatory Affairs	VP-Govt & Comm Aff	President
PNR	Technology	Technology	En Sol	President
PNS	Sox Compliance	Corp Audit & Complnc	Pres	President
PNX	Admin-Audit & Complnc	Corp Audit & Complnc	Pres	President
PPA	Admin-Ind Rel	Industrial Relations	VP-Corp Excellence	President
PPI	Labor Rel & Wage Adm	Industrial Relations	VP-Corp Excellence	President
PPW	Disability Management	Comp & Benefits	VP-Corp Excellence	President
PQC	Corp Communications	Corp Communications	VP-Corp Relations	President
PQE	Educ & Cons Affairs	Educ & Cons Affairs	VP-Govt & Comm Aff	President
PRA	Admin-Sys Op	System Operation	VP-Energy Delivery	President
PRC	Communications	System Operation	VP-Energy Delivery	President
PRD	Operating Dispatch	System Operation	VP-Energy Delivery	President
PRE	Operating Engineering	System Operation	VP-Energy Delivery	President

HECO

Listing of Responsibility Areas and Rollups

*RA #	Resp Area	Dept	VP	President
PSD	Cust Efficiency Pgms	Energy Services	Cust Sol	President
PSM	Forecasts & Research	Fcsts & Research	Cust Sol	President
PSN	Marketing Services	Marketing Svcs	Cust Sol	President
PSP	Pricing	Energy Services	Cust Sol	President
PSR	Cust Tech Applicatns	Cust Tech App	Cust Sol	President
PVA	Admin-Supp Svcs	Support Services	VP-Energy Delivery	President
PVF	Fleet	Support Services	VP-Energy Delivery	President
PVL	Electric & Welding Svcs	Support Services	VP-Energy Delivery	President
PVM	Materials Management	Support Services	VP-Energy Delivery	President
PVP	Purchasing	Support Services	VP-Energy Delivery	President
PWA	Admin-CID	Cust Installations	En Sol	President
PWP	Planning & Design	Cust Installations	En Sol	President
PWX	Engineering & Meter	Cust Installations	En Sol	President
PYA	Admin-Plng & Engr	Pwr Sup Engineering	VP-Power Supply	President
PYB	Generation Planning	Production	VP-Power Supply	President
PYC	Support Staff	Pwr Sup Engineering	VP-Power Supply	President
PYE	PS Technical Svcs	Pwr Sup Engineering	VP-Power Supply	President
PYF	PP Electrical Engr	Pwr Sup Engineering	VP-Power Supply	President
PYG	PP Drafting	Pwr Sup Engineering	VP-Power Supply	President
PYJ	PP Project Mgt	Pwr Sup Engineering	VP-Power Supply	President
PYM	PP Mechanical Engr	Pwr Sup Engineering	VP-Power Supply	President
PYP	Integrated Res Plng	Integrated Res Plng	Cust Sol	President
PYT	Transmission Plng	Production	VP-Power Supply	President

CA-IR-6

Please provide a chart showing each separate legal entity within HEI and provide the following additional information:

- a. Explain and quantify the types of recurring and non-recurring affiliate transactions that took place in 2003 and 2004 (to-date) between HECO and each affiliated entity.
- b. Describe the basis of pricing each form of affiliate transaction listed in your response to part (a) of this information request, for example fully distributed cost, market price, appraised value, etc.
- c. If any affiliate service agreements exist in connection with HECO affiliate transactions, please provide complete copies of same.
- d. Identify and describe each affiliate relationship of HECO for which Hawaii PUC notification and/or approval has been sought or received.
- e. Provide complete copies of any documents associated with your response to part (d) of this information request.

HECO Response:

As requested, a chart showing each separate legal entity within HEI is provided on page 4 to this response.

- a. The 2003 and 2004 information for HECO services provided to its affiliates is provided on pages 5 to 18 to this response. The 2003 and 2004 information for HEI services provided to HECO is provided on pages 19 to 20 to this response.
- b. Charges between HECO and its affiliates are based on actual costs including applicable on-cost loadings.
- c. Service agreements between HECO and affiliates that meet the requirements of Hawaii Revised Statutes ("HRS") section 269-19.5 are submitted to the Commission with copies to the Division of Consumer Advocacy. Agreements filed with the Commission include:
 - HEI/HECO Administrative Services Agreement dated February 4, 1993 (filed with the

Commission on April 26, 1993). Addendums to the HEI/HECO Administrative Services Agreement and Updated Exhibit A to the Administrative Services Agreement were filed with the Commission and the Consumer Advocate on February 15, 2005.

- HECO/RHI Administrative Services Agreement dated January 1, 2003 (filed with the Commission on May 14, 2003).

In addition, the following service agreements are provided. However, due to the voluminous nature of this information, one copy each will be provided to the Consumer Advocate and the Public Utilities Commission under separate transmittal.

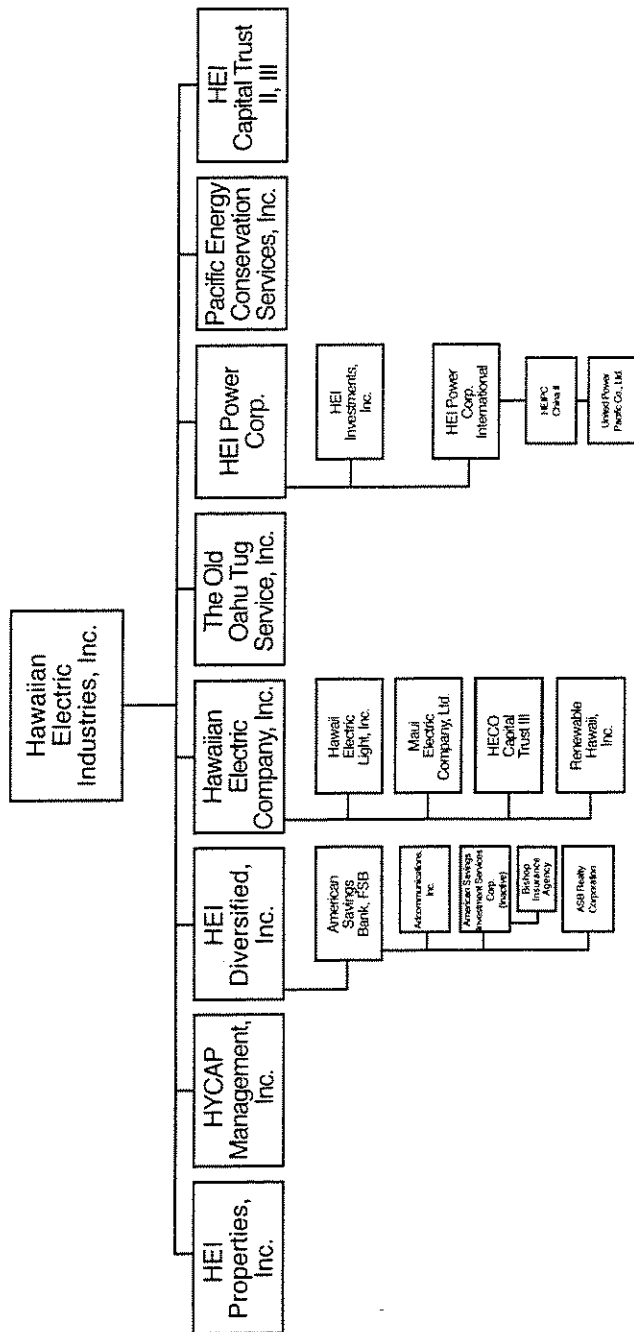
1. HECO/American Savings Bank Administrative Services Agreement (dated November 8, 1996) and the latest Renewal and Extension Agreement dated December 30, 2004. (See pages 21 to 31.)

2. HECO/HEI and American Savings Bank Administrative Services Agreement dated

operations in the third quarter of 1998.

7. HECO/PECS Administrative Services Agreement (dated June 26, 1997). (See pages 85 to 92.)
 8. HECO-MECO-HEI-HEIPC/HEI/HEIPC Affiliates Service Agreement (dated April 17, 1995). (See pages 93 to 104.) HEI reported HEIPC as discontinued operations in the third quarter of 2001.
 9. HECO/HEI Diversified, Inc. Administrative Services Agreement (dated August 15, 1994). (See pages 105 to 112.)
 10. HECO/Provision Technologies, Inc. Administrative Services Agreement (dated August 25, 2000). ProVision Technologies, Inc. was sold on July 14, 2003. (See pages 113 to 120.)
 11. HECO/HEI District Cooling, Inc. Administrative Services Agreement (dated August 17, 1998). (See pages 121 to 128.) HEI District Cooling, Inc. was dissolved in October 2003.
- d. Agreements between HECO and any affiliated interests having a face value of at least \$300,000 shall be filed with the Commission in accordance with HRS Section 269-19.5.
 - e. See response to part c.

Hawaiian Electric Industries, Inc. Corporate Organizational Chart



NARUC 1861
HECO Charges Billable to associated companies
2003

JC	DESCRIPTION	186300	186400	186410	186420	186430	186450	186460
BILL	CHARGES BILL	CHARGES BILL	CHARGES BILL	CHARGES BILL	CHARGES BILL	CHARGES BILL	CHARGES BILL	CHARGES BILL
COS-	TO ASSOC COS-	TO ASSOC COS-	TO ASSOC COS-	TO ASSOC COS-	TO ASSOC COS-	TO ASSOC COS-	TO ASSOC COS-	TO ASSOC COS-
	MECO	HEI	HEIII	MPC	TOOTS (HTB)	ASB	PECS	
30.55	8,633.19							
25.37	15,408.17							
35.48	2,848.07							
27.57								
35.53								
36.48	30,533.13							
31.89								
10.26	69,330.76							
38.53	469.34							
46.74								
32.44	116,398.15							
57.96	1,025.89							
24.31	15,847.18							
39.70	17,229.73							
22.12	6,905.88							
	979.31							
16.43	8,991.66							
11.61	23,619.27							
39.66								
59.39								
50.58	1,776.89							
30.43								
23.93								
13.80								
	21,586.83							
31.28	107,048.21							
13.67	19,623.11							
58.18								
	160,923.74							
	28,155.73							
77.18	5,766.41							
	29,398.49							
	21,122.27							
32.66	11,607.93							
80.12	6,116.84							
64.37								
	410.06							
05.83	9,970.30							
	18,927.69							
59.47	28,069.98							
95.96	68,655.17							
78.49	511.02							
75.58	224,444.70							
52.47	21,022.17							

NARUC 1861
HECO Charges Billable to associated companies
2003

Sum of Amount		INTER NARUC DESCRIPTION		186200	186300	186400	186410	186420	186430	186450	186460
		CHARGES BILL TO ASSOC COS- HELCO	CHARGES BILL TO ASSOC COS- MECO	CHARGES BILL TO ASSOC COS- HEI	CHARGES BILL TO ASSOC COS- HEIII	CHARGES BILL TO ASSOC COS- MPC	CHARGES BILL TO ASSOC COS- TOOTS (HTB)	CHARGES BILL TO ASSOC COS- ASB	CHARGES BILL TO ASSOC COS- PECS		
ACCOUNT Activity Desc											
618	Mng Past Due Accts		24.46								
627	Perf Non Reg Svcs Work										
700	Dev & Adm Business Plans	14,081.84	24,225.55	43,853.98							
701	Dev & Mg Forecasts	12,680.61	13,477.25	277.92							
710	Dev & Mg Fcst-Sales/Load	25,903.26	23,419.66								
711	Adm & Impl IRP Pgm-Base	155,574.72	239.33								
712	Adm & Impl IRP Pgm-Incr		155,627.18								
714	Adm & Impl DSM Pgm-Incr	227,104.20	177,716.31								
720	Improve Bus Processes	2,080.59									
722	Org Dev Strat										
723	Mg Incent & Recog Pgm	1,571.92	3,172.87								
730	Rsrch New Technology	269,779.34	221,445.32								
731	Dev & Demo New Tech		1,823.00								
736	Pricing Anlys&Proposals	49,159.58	25,054.91								
737	Cost Recov & Rate Adj	27,530.51	30,863.71								
738	Other PUC Reg Filings	30,506.29	31,623.19								
739	PUC Cap Proj Filings	3,997.80	23,853.55								
745	Maint Rel-Leg & Govt Ag	11,716.76	6,945.80								
749	Maint Rel-Ind Assoc	50,394.00	54,028.00								
750	Maint Rel- Cust	34,796.74	31,754.41	6,177.68						6,903.02	
751	Adm Informational Ad	1,971.79	1,803.01								
752	Maint Rel-Media	7,239.97	2,103.64								
753	Maint Rel-Community	8,534.00	5,814.00	144.74							
755	Maint Rel-BOD	10,081.31	8,190.89	56,878.05		108.10		4,839.54			
756	Maint Rel-Invest	168.50	167.67	20,840.67							
760	Audits-Internal	8,935.81	26,908.92								
761	Audits-External	409.05	409.05	204.52							
765	Empl Pol Prac Proc	1,888.71	263.51	608.97							
768	Maint Employee Recds	1,724.66	1,673.94	308.26							
767	Recruit PolPracProc	45,534.99		2,018.21							
775	Empl Comp PolPracProc	18,525.00	16,383.91	9,897.41							146.52
776	Ben Plan PolPracProc	16,421.53	16,998.02	3,403.44							1,140.55
777	Process Payroll	412.31	770.06	7,400.80							1,698.10
778	Adm Flexible Ben Pgm	18,988.96	19,015.98	3,043.82							1,301.72
779	Adm Retirement Pgm	28,635.22	27,819.86	24,737.31							1,272.22
780	Adm Ben Oth than Flex Ret	46,394.70	48,258.24	95,696.47							19.29
787	Dev Empl Training	4,389.40									
788	Conduct Empl Training	8,480.82	12,779.75								
789	Attend Training		1,233.75								
795	Mg Safety Pgm & Trng	578.12						390.12			
805	Mg BU & Oth Lbr Agrmnt	17,578.12	16,450.68								
807	Co-wide Empl Commun	8,474.95	7,861.93	28,071.32							
815	Dev Adm Acctg Pol Proc	1,345.94	1,133.81								
817	Maint Fixed Asset Rcds	38,824.41	45,693.66								
818	Maint GIL & Stat Info	9,313.62	8,427.86	32,652.36	2,612.27			432.68			296.67

NARUC 1861
HECO Charges Billable to associated companies
2003

Sum of Amount		INTER NARUC		DESCRIPTION	186200		186300		186400		186410		186420		186430		186450		186460	
		CHARGES BILL TO ASSOC COS-HELCO	CHARGES BILL TO ASSOC COS-MECO		CHARGES BILL TO ASSOC COS-HEI	CHARGES BILL TO ASSOC COS-HEIII	CHARGES BILL TO ASSOC COS-MPC	CHARGES BILL TO ASSOC COS-TOOT'S (HTB)	CHARGES BILL TO ASSOC COS-ASB	CHARGES BILL TO ASSOC COS-PECS										
ACCOUNT	Activity Desc																			
	25	Manage Cash	121,095.06	38,293.54																
	26	Manage Financing	82,545.57	60,974.28																
	27	Perf Econ/Fin Anlys	4,628.93	3,754.34																
	35	Fin Rpts/StalInfo-Int	7,335.97	6,936.95																
	36	Fin Rpts/StalInfo-Ext	20,783.11	25,479.27																
	42	Order Mat Eq Sup & Svcs	25,448.07	27,266.41																
	43	Proc Invoices Oth Pmt	125,293.28	124,974.12																
	44	Prep Contr-Svcs & Mat	9,642.70	4,210.62																
	65	Apply Envir Permits-Air	62,609.30	133,997.56																
	66	Apply Envir Permits-Wtr	22,563.68	7,660.73																
	67	Apply Land Use Permits	77,214.58	1,630.49																
	75	Comply Ongo Perm-Air	94,304.98	140,159.28																
	76	Comply Ongo-WasteWtr	36,816.22	131,930.50																
	77	Comply Sid&HazWaste Oil&Ref	21,911.90	89,063.27																
	78	Comply Sid&HazWaste NonOil	1,730.86	19,959.93																
	79	Comply Ongoing-Noise	186,935.54	187,421.96																
	95	Op & Maint Mainframe	123,036.08	123,036.08																
	96	Op & Maint LAN																		
	97	Op & Maint Desktop-Bus	69,103.38	67,225.22																
	99	Op Desktop OffcTelecom																		
	25	Purchase Real Property																		
	28	Process Easements	2,089.76	4,309.12																
	30	Mg Const & Reconfig Fac																		
	31	Care for Bldgs & Grnds																		
	32	Repair Bldgs & Grnds	28,775.23																	
	34	Prov&Mg Svcs-Custodial																		
	40	Mg&Adm Veh Pgm Pol&Proc	20,707.05	11,482.50																
	42	Maint Vehicles	1,669.83																	
	50	Prov Risk Mgt Svcs-Liab	259,680.21	275,339.21																
	51	Prov Risk Mgt Svcs-Prop	485,754.12	672,342.86																
	53	Prov Risk Mgt Svcs-WC	73,991.87	81,675.72																
	60	Mg Svc & Process Doc	11,203.63	19,309.11																
	61	Cond Legal Due Diligence	3,011.91																	
	66	Handle & Deliver Mail	979.34																	
	67	Prov Printing Svcs		150.80																
	rand Total		5,031,686.82	4,438,562.25				647,417.24				3,620.61		45.01		2,650.37		96,835.80		27,863.00

NARUC 1861
HECO Charges Billable to associated companies
2003

Sum of Amount		186470	186480	186481	186482	186483	186484	186486
ACCOUNT	Activity Desc	CHARGES BILL TO ASSOC COS- HEIPC	CHARGES BILL TO ASSOC COS- HEIDI	CHGS BILL HEIDC INC	CHARGES BILL TO PROVISTECH	CHARGES BILL TO HEI LEASING INC.	CHARGES BILL TO HEI PROPERTIES INC.	Charges Billable- Renewable Hawaii Inc.
042	Financial Securities Issuance							
100	Cond Mkt Research-Reg							
110	Impl Mktg Pgm-Core							
111	Impl Mktg Pgm-Non Core							
121	Adm Firm Cap Contracts							
122	Eval & Neg New Cont							
131	Rev Enhance-NonReg							
140	Impl Mktg Pgm-NonReg			36.30				7,632.40
200	Dev Gen Forecasts							
201	Perf Gen Png Studies							
210	Plan & Approve Projects							
211	Engr Design & Mng Proj							
212	Construct Projects							
220	Mng Fuel Sup Procuremnt							
221	Adm Fuel Supp Contract							
222	Mng Fuel & Dist Svcs							
230	Mng O&M Fuel Fac							
231	Mng Fuel Del & Inv Png							
241	Op & Mon Fuel Feed Sys							
245	Mon Plt Perf-Boiler							
257	Maint Boiler Plt Eq-Prev							
258	Maint Boiler Plt Eq-Pred							
259	Maint Boiler Plt Eq-Corr							
260	Maint Sim Turbo Eq-Prev							
262	Maint Sim Turbo Eq-Corr							
266	Maint Com Misc Eq-Prev							
300	Perf Trans Png Studies							
302	E&D Trans Fac-OH Ln							
303	E&D Trans Fac-UG Ln							
304	E&D Trans Fac-Sub Eq							
305	E&D Trans Fac-Sub Slr							
307	Mng Trans Projects							
317	Const Trans Fac-Sub Eq							
348	Maint Sub Trans Eq-Prev							
349	Maint Sub Trans Eq-Pred							
402	Dev & Maint DistStdSpecs							
456	Comp&Upd DislMaps&Prints							
465	Test meters & rel Eq							
492	Maint Dist Tools & Eq							
600	Resp to Cus Ing/Svc Req							
604	Maint Cus Account Info							
610	Read Billing Meters							
611	Mg Billing & Acct Prob							
614	Process Cust Bills							
616	Process Cust Payments							

NARUC 1861
HECO Charges Billable to associated companies
2003

Sum of Amount		186470	186480	186481	186482	186483	186484	186486
ACCOUNT	Activity Desc	CHARGES BILL TO ASSOC COS- HEIPC	CHARGES BILL TO ASSOC COS- HEIDI	CHGS BILL HEIDC INC	CHARGES BILL TO PROVISTECH	CHARGES BILL TO HEI LEASING INC.	CHARGES BILL TO HEI PROPERTIES INC.	Charges Billable- Renewable Hawaii, Inc.
618	Mng Past Due Accls	18,489.83						
627	Perf Non Reg Svcs Work							
700	Dev & Adm Business Plans							44,235.97
701	Dev & Mgt Forecasts							
710	Dev & Mgt Fcst-Sales/Load							
711	Adm & Impl IRP Pgm-Base							
712	Adm & Impl IRP Pgm-Incr							
714	Adm & Impl DSM Pgm-Incr							
720	Improve Bus Processes							
722	Org Dev Strat							4,287.74
723	Mgt Incent & Recog Pgm							
730	Rsrch New Technology						1,497.95	
731	Dev & Demo New Tech							
736	Pricing Anlys&Proposals							54,260.65
737	Cost Recov & Rate Adj							
738	Other PUC Reg Filings							
739	PUC Cap Proj Filings							
745	Maint Rel-Leg & Govt Ag							
749	Maint Rel-Ind Assoc							
750	Maint Rel- Cust							
751	Adm Informational Ad							
752	Maint Rel-Media							
753	Maint Rel-Community							
755	Maint Rel-BOD							
756	Maint Rel-Invest							812.68
760	Audits-Internal							
761	Audits-External							
765	Empl Pol Prac Proc							
766	Maint Employee Recds							
767	Recruit PolPracProc	116.64			1,007.33			
775	Empl Comp PolPracProc				81.83			
776	Ben Plan PolPracProc	144.70			218.72			
777	Process Payroll	1,246.80			529.14			
778	Adm Flexible Ben Pgm	663.78			487.23			
779	Adm Retirement Pgm	735.15			537.17			
780	Adm Ben Oth than Flex Ret	12.97			2.50			
787	Dev Empl Training							
788	Conduct Empl Training							
789	Attend Training							
795	Mgt Safety Pgm & Trng							
805	Mgt BU & Oth Lbr Agrmnt							
807	Co-wide Empl Commun							
815	Dev Adm Acctg Pol Proc							3,566.32
817	Maint Fixed Asset Rcds							
818	Maint G/L & Stat Info	296.67	2,612.97		252.03			7,998.48

NARUC 1861
HECO Charges Billable to associated companies
2003

Sum of Amount		186470	186480	186481	186482	186483	186484	186486
ACCOUNT	Activity Desc	CHARGES BILL TO ASSOC COS- HEIPC	CHARGES BILL TO ASSOC COS- HEIDI	CHGS BILL HEIDC INC	CHARGES BILL TO PROVIDTECH	CHARGES BILL TO HEI LEASING INC.	CHARGES BILL TO HEI PROPERTIES INC.	Charges Billable- Renewable Hawaii, Inc.
825	Manage Cash	3,207.98	557.26	162.00	112.98	454.22	305.76	772.58
826	Manage Financing							
827	Perf Econ/Fin Anlys							
835	Fin Rpts/StatInfo-Int							
836	Fin Rpts/StatInfo-Ext		281.67					
842	Order Mat Eq Sup & Svcs							
843	Proc Invoices Oth Pmt							
844	Prep Contr-Svcs & Mat				119.01			
865	Apply Envir Permits-Air							
866	Apply Envir Permits-Wtr							
867	Apply Land Use Permits							
875	Comply Ongo Perm-Air							
876	Comply Ongo-WasteWtr							
877	Comply Sld&HazWaste Oil&Rel							
878	Comply Sld&HazWaste NonOil							
879	Comply Ongoing-Noise							
891	Maint Exist Comp App							
895	Op & Maint Mainframe							
896	Op & Maint LAN							
897	Op & Maint Desktop-Bus							
900	Op Desktop Ofc Telecom							
925	Purchase Real Property							
928	Process Easements							
930	Mg Const & Reconfig Fac							
931	Care for Bldgs & Grnds							
932	Repair Bldgs & Grnds							
934	Prov&Mg Svcs-Custodial							
940	Mg/Adm Veh Pgm Pol&Proc							
942	Maint Vehicles							
950	Prov Risk Mgt Svcs-Liab	422.20			256.08			
951	Prov Risk Mgt Svcs-Prop							
953	Prov Risk Mgt Svcs-WC	45.72						
960	Mg Svc & Process Doc				269.23			
961	Cond Legal Due Diligence						1,631.14	
966	Handle & Deliver Mail							
967	Prov Printing Svcs							
Grand Total		23,382.24	3,451.90	198.30	3,873.25	454.22	3,434.85	123,567.02

NARUC 1861
HECO Charges Billable to associated companies
2004

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Sum of Amount		INTER NARUC	DESCRIPTION	186200	186300	186400	186410	186420	186430	186450	186460
ACCOUNT	Activity Desc	CHARGES BILL TO ASSOC COS- HELCO	CHARGES BILL TO ASSOC COS- MECO	CHARGES BILL TO ASSOC COS- HEI	CHARGES BILL TO ASSOC COS- HEIII	CHARGES BILL TO ASSOC COS- MPC	CHARGES BILL TO ASSOC COS- TOOTS (HTB)	CHARGES BILL TO ASSOC COS- ASB	CHARGES BILL TO ASSOC COS- PECS		
042	Financial Securities Issuance	34,696.05	34,643.98								
100	Cond Mkt Research-Reg	22,572.49	21,392.59								
110	Impl Mktg Pgm-Core	7.65	1,149.71								
111	Impl Mktg Pgm-Non Core	19,683.57									
121	Adm Firm Cap Contracts	6,857.87	15,734.65								
122	Eval & Neg New Cont	131,095.23	152,650.44								
131	Rev Enhance-NonReg										
200	Dev Gen Forecasts	26,821.95	52,627.65								
201	Perf Gen Ping Studies	51,753.41	3,924.27								
210	Plan & Approve Projects	39,517.99	9,959.67								
211	Engr Design & Mng Proj	507,027.36	175,137.45								
212	Construct Projects	17,125.17									
220	Mng Fuel Sup Procuremnt	27,660.47	28,440.24								
221	Adm Fuel Supp Contract	17,319.78	18,798.46								
222	Mng Fuel & Dist Svcs	132.15	1,247.30								
230	Mng O&M Fuel Fac		138.50								
231	Mng Fuel Del & Inv Ping	10,960.39	11,221.11								
241	Op & Mon Fuel Feed Sys	8,379.16	27,826.31								
245	Mon Plt Perf-Boiler	1,974.55									
257	Maint Boiler Plt Eq-Prev	366.62	170.00								
260	Maint Sm Turbo Eq-Prev	149.20									
261	Maint Sm Turbo Eq-Pred	3,820.51									
300	Perf Trans Ping Studies	237,210.81	64,867.14								
302	E&D Trans Fac-OH Ln	117,335.40	35,391.54								
303	E&D Trans Fac-UG Ln	10,530.10									
304	E&D Trans Fac-Sub Eq		71,897.12								
305	E&D Trans Fac-Sub Str		528.49								
307	Mng Trans Projects	22,673.09	27,948.15								
315	Const Trans Fac-OH Ln	287.44									
317	Const Trans Fac-Sub Eq		18,576.14								
344	Maint Tr OH Ln-Corr	1,032.42									
348	Maint Sub Trans Eq-Prev		63,007.23								
349	Maint Sub Trans Eq-Pred	9,133.67	8,960.61								
400	Perf Dist Ping Studies	14,705.24									
402	Dev & Maint DistStdSpecs	23,283.91	10,087.09								
403	E&D Dist Fac-OH Ln		33.48								
456	Comp&Upd DisMaps&Prints	272.48									
475	Maint Dist OH Ln-Corr	49,584.04									
492	Maint Dist Tools & Eq	19,424.68	18,288.36								
600	Resp to Cus Inq/Svc Req	73,899.90	65,561.54	15,148.60							
604	Maint Cus Account Info	15,782.21	15,671.02								
610	Read Billing Meters	29,685.59	26,619.65								
611	Mg Billing & Acct Prob	1,386.54	147.70								

NARUC 1861
HECO Charges Billable to associated companies
2004

Sum of Amount		INTER NARUC		DESCRIPTION		2004				
		186200		186300	186400	186410	186420	186430	186450	186460
ACCOUNT	Activity Desc	CHARGES BILL TO ASSOC COS- HELCO	CHARGES BILL TO ASSOC COS- MECO	CHARGES BILL TO ASSOC COS- HEI	CHARGES BILL TO ASSOC COS- HEIII	CHARGES BILL TO ASSOC COS- MPC	CHARGES BILL TO ASSOC COS- TOOTS (HTB)	CHARGES BILL TO ASSOC COS- ASB	CHARGES BILL TO ASSOC COS- PECS	
614	Process Cust Bills	272,750.47	224,283.95							
616	Process Cust Payments	19,311.10	19,342.31							
627	Perf Non Reg Svcs Work									
700	Dev & Adm Business Plans	28,239.31	21,727.99	40,532.60						
701	Dev & Mg Forecasts	61,978.75	60,470.89	56.92				11.38		847.75
710	Dev & Mg Fcst-Sales/Load	32,018.87	29,387.08							
711	Adm & Impl IRP Pgm-Base	267,286.28	276.59							
712	Adm & Impl IRP Pgm-Incr		129,997.34							
714	Adm & Impl DSM Pgm-Incr	144,839.88	135,651.24							
721	Dev Meas & Anlz Perf	508.85	665.61							
722	Org Dev Strat	671.29	623.51							
723	Mg Incent & Recog Pgm	1,618.50	2,986.62							
730	Rsrch New Technology	323,168.72	297,149.15							
736	Pricing Anlys&Proposals	44,306.74	1,638.13							
737	Cost Recov & Rate Adj	5,698.05	4,283.70							
738	Other PUC Reg Filings	34,178.89	30,142.24							
739	PUC Cap Proj Filings	7,145.36	22,811.46							
745	Maint Rel-Leg & Govt Ag	11,100.15	7,356.60							
749	Maint Rel-Ind Assoc	52,764.00	55,337.00					6,802.80		
750	Maint Rel- Cust	31,184.90	27,406.84	6,557.94						
751	Adm Informational Ad	2,727.08	2,352.97							
752	Maint Rel-Media	1,354.14								
753	Maint Rel-Community	8,000.00	6,000.00	223.54						
755	Maint Rel-BOD	14,886.69	10,548.94	60,035.41				5,962.30		
756	Maint Rel-Invest	256.62	256.62	21,610.51						
760	Audits-Internal	13,528.13	248.01							
761	Audits-External	64.44	64.44	75.25				21.81	10.27	
765	Empl Pol Prac Proc	15,902.24	2,063.81							
766	Maint Employee Recds	2,173.10	2,303.07	804.11						
767	Recruit PolPracProc			1,763.90						
775	Empl Comp PolPracProc	24,219.20	21,538.45	9,007.35						
776	Ben Plan PolPracProc	457.09	459.60	810.86						
777	Process Payroll	5,006.03	2,651.67	4,292.67				326.77		
778	Adm Flexible Ben Pgm	20,710.64	19,272.87	10,937.23						131.19
779	Adm Retirement Pgm	15,074.35	13,438.39	21,864.60						934.50
780	AdmBen Oth than Flex Ret	62,013.85	56,328.07	99,688.19			44.86	(2,388.28)		1,538.18
787	Dev Empl Training		630.22							1,101.45
788	Conduct Empl Training	16,535.92	12,268.36							18.46
789	Attend Training	8,213.47	1,185.19							
795	Mg Safety Pgm & Trng	4,539.21								
796	Prov & Mg Fire Protect	3,871.24								
805	Mg BU & Oth Lbr Agrmnt	4,751.45	2,008.98							
807	Co-wide Empl Commun	8,035.57	7,634.62	7,891.80						
815	Dev Adm Acclg Pol Proc	568.56	171.98							
817	Maint Fixed Asset Rcds	7,834.10	6,760.44							

NARUC 1861
HECO Charges Billable to associated companies

NARUC	DESCRIPTION	186300	186400	186410	186420	186430	186450	186460
		CHARGES BILL TO ASSOC COS- MECO	CHARGES BILL TO ASSOC COS- HEI	CHARGES BILL TO ASSOC COS- HEIII	CHARGES BILL TO ASSOC COS- MPC	CHARGES BILL TO ASSOC COS- TOOTS (HTB)	CHARGES BILL TO ASSOC COS- ASB	CHARGES BILL TO ASSOC COS- PECS
7,472.79		6,874.22	9,931.37	2,806.84			818.76	199.54
3,108.16				148.21				
4,828.33		33,286.39	160,537.31	631.64	(8.36)	945.01		617.88
2,535.63		64,236.13	79,700.00					
1,655.62		336.39	276.25					
1,911.34		1,884.18	53.57					
9,868.94		320,279.58	1,023.49	145.00				
		55.17						
5,607.19		20,579.48						
2,828.74		113,503.37	240.09					
4,118.86		1,841.78	1,028.80					
9,522.10		45,349.91						
3,354.00		5,685.12						
4,266.38								
0,193.42		70,908.05						
8,342.68		91,800.27						
4,492.99		50,929.24						
2,990.29		28,707.08						27.04
383.54								
2,664.42		191,649.08						
4,330.73		134,330.73	5,221.00					
0,129.27		15,815.87	543.80					
2,073.48		47,289.22	10,091.54					
111.28		111.28						
			7,988.52					
1,653.89		24,398.75						
1,698.21		6,630.83						
		923.76						
9,217.64		3,252.45	16,333.38					
			1,512.37					
3,869.05		13,047.50						
1,123.63								
5,313.26		431,553.37	1,056,511.25				11,213.70	1,050.10
2,846.73		748,702.64	5,267.95				4,415.81	
5,630.89		71,586.34	1,092.90			542.85	478.79	11,698.00
9,928.59		11,656.76						
2,826.53			52.01					
407.13								
		82.96	2,870.18				182.75	
5,948.05		4,779,660.44	1,661,577.06	3,731.69	(8.36)	1,532.72	27,846.59	18,352.16

Sum of Amount		186470	186480	186484	186486
ACCOUNT	Activity Desc	CHARGES BILL TO ASSOC COS- HEIPC	CHARGES BILL TO ASSOC COS- HEIDI	CHARGES BILL TO HEI PROPERTIES INC.	Charges Billable- Renewable Hawaii, Inc.
042	Financial Securities Issuance				
100	Cond Mkt Research-Reg				
110	Impl Mktg Pgm-Core				
111	Impl Mktg Pgm-Non Core				
121	Adm Firm Cap Contracts				
122	Eval & Neg New Cont				
131	Rev Enhance-NonReg				36,219.46
200	Dev Gen Forecasts				
201	Perf Gen Ping Studies				
210	Plan & Approve Projects				
211	Engr Design & Mng Proj				
212	Construct Projects				
220	Mng Fuel Sup Procuremnt				
221	Adm Fuel Supp Contract				
222	Mng Fuel & Dist Svcs				
230	Mng O&M Fuel Fac				
231	Mng Fuel Del & Inv Ping				
241	Op & Mon Fuel Feed Sys				
245	Mon Plt Perf-Boiler				
257	Maint Boiler Plt Eq-Prev				
260	Maint Sim Turbo Eq-Prev				
261	Maint Sim Turbo Eq-Pred				
300	Perf Trans Ping Studies				
302	E&D Trans Fac-OH Ln				
303	E&D Trans Fac-UG Ln				
304	E&D Trans Fac-Sub Eq				
305	E&D Trans Fac-Sub Str				
307	Mng Trans Projects				
315	Const Trans Fac-OH Ln				
317	Const Trans Fac-Sub Eq				
344	Maint Tr OH Ln-Corr				
348	Maint Sub Trans Eq-Prev				
349	Maint Sub Trans Eq-Pred				
400	Perf Dist Ping Studies				
402	Dev & Maint DistSpecs				
403	E&D Dist Fac-OH Ln				
456	Comp&Upd DistMaps&Prints				
475	Maint Dist OH Ln-Corr				
492	Maint Dist Tools & Eq				
600	Resp to Cus Inq/Svc Req				
604	Maint Cus Account Info				
610	Read Billing Meters				
611	Mg Billing & Acct Prob				

NARUC 1861
HECO Charges Billable to associated companies
2004

186470	186480	186484	186486
CHARGES BILL TO ASSOC COS- HEIPC	CHARGES BILL TO ASSOC COS- HEIDI	CHARGES BILL TO HEI PROPERTIES INC.	Charges Billable- Renewable Hawaii, Inc.
ills			
yments			
ves Work	21,984.44		
iness Plans			
Casts			
Sales/Load			
Pgm-Base			
Pgm-Incr			
M Pgm-Incr			
Iz Perf			
ocog Pgm			
hnology			
roposals			
ate Adj			
Fillings			
illings			
t Govt Ag			
ssoc			
nal Ad			
a			
munity			
Proc			
Recds			
Proc			
PracProc			
acProc	203.66		
	1,037.77		
an Pgm	723.13		
Pgm	584.34		
an Flex Ret			
ing			
training			
& Trng			
Protect			
or Agrmnt			
Commun			
Pol Proc			
et Rcds			

NARUC 1861
HECO Charges Billable to associated companies

Sum of Amount		186470	186480	186484	186486
		CHARGES BILL TO ASSOC COS- HEIPC	CHARGES BILL TO ASSOC COS- HEIDI	CHARGES BILL TO HEI PROPERTIES INC.	Charges Billable- Renewable Hawaii, Inc.
ACCOUNT	Activity Desc				
818	Maint G/L & Stat Info	54.38	2,770.03		11,112.82
819	Adm Tax Return & Reports				
825	Manage Cash	2,354.83	457.40	403.98	48.24
826	Manage Financing				
827	Perf Econ/Fin Anlys				
835	Fin Rpts/StatInfo-Int				
836	Fin Rpts/StatInfo-Ext		226.79		
841	New Supp/Contr/Consult				
842	Order Mat Eq Sup & Svcs				
843	Proc Invoices Oth Pmt				
844	Prep Contr-Svcs & Mat				
865	Apply Envir Permits-Air				
866	Apply Envir Permits-Wtr				
867	Apply Land Use Permits				
875	Comply Ongo Perm-Air				
876	Comply Ongo-Wstewtr				
877	Comply Sld&HazWste Oil&Rel				
878	Comply Sld&HazWste NonOil				
879	Comply Ongoing-Noise				
891	Maint Exist Comp App				
895	Op & Maint Mainframe				
896	Op & Maint LAN				
897	Op & Maint Desktop-Bus				
899	Maintain Applications				
900	Op Desktop Offc/Telecom				
907	Mg E&D Sys-Telecom				
925	Purchase Real Property				
928	Process Easements				
931	Care for Bldgs & Grnds				
932	Repair Bldgs & Grnds				
934	Prov&Mg Svcs-Custodial				
940	Mg/Adm Veh Pgm Pol&Proc				
942	Maint Vehicles				
950	Prov Risk Mgt Svcs-Liab	1,512.89			6.63
951	Prov Risk Mgt Svcs-Prop				
953	Prov Risk Mgt Svcs-WC	48.36			
960	Mg Svc & Process Doc				
961	Cond Legal Due Diligence			12.94	
966	Handle & Deliver Mail				
967	Prov Printing Svcs				
Grand Total		28,503.90	3,454.22	416.92	47,387.15

Sum of SumOfTRAN AMOUNT		INTER NARUC	
		146200 ACCTS REC'D FROM ASSOC CO- HELCO	146300 ACCTS REC'D FROM ASSOC CO- MECO
Desc		146400 ACCTS REC'D FROM ASSOC CO-HEI	289,641.64
HEI KING ST RENTAL, WARD PARKG		19,943.00	(2,276.00)
ICS		185,960.41	134,747.07
ISD Billing Charges			
TO REVERSE DATA CENTER CHRGS 04/03-05/03			(52,100.00)
Grand Total		205,903.41	132,471.07
			237,541.64

Sum of SumOfTRAN_AMOUNT		INTER_NARUC	DESCRIPTION	
		146200	146300	146400
		ACCTS REC FROM ASSOC CO	ACCTS REC FROM ASSOC CO	ACCTS REC FROM ASSOC CO
Desc		HELCO	MECO	HEI
HEI KING ST RENTAL, WARD PARKG				
ICS		15,000.00	(1,656.00)	323,233.71
ISD Billing Charges		238,759.95	179,923.27	
Grand Total		253,759.95	178,267.27	323,233.71

Activity Description	Amount
aint Mainframe	106,696.22
adm Business Plans	121,013.73
fig Forecasts	1,796.08
ent & Recog Pgm	317,181.71
el-BOD	46,836.59
el-Invest	575,202.42
nternal	13,663.04
omp PolPracProc	72,383.35
m Acctg Pol Proc	28,769.68
ix Return & Reports	176,740.18
Cash	867.36
Financing	2,177.69
s/StatInfo-Ext	657,031.92
egal Due Diligence	(443.22)
PolPracProc	343.12
in PolPracProc	24,479.75
xtremement Pgm	169,854.62
Financing	606.00

Intercompany charges
2004

DSTRCT CODE	CCY	IND	NARUC	ACCOUNT	ACT	ACCOUNT	RA	ACCOUNT	EXP	Activity Description	Amount
HECO	2004		184	CLRNG ACCTS		895	PEI	550		Op & Maint Mainframe	79,438.81
HECO	2004	921	A&G EXP-NLABR		700		P9P	550		Dev & Adm Business Plans	142,647.27
HECO	2004	921	A&G EXP-NLABR		701		P9P	550		Dev & Mg Forecasts	605.58
HECO	2004	921	A&G EXP-NLABR		723		P9P	550		Mg Incent & Recog Pgm	338,315.01
HECO	2004	921	A&G EXP-NLABR		735		P9P	550		Rate Case Filings	28,008.93
HECO	2004	921	A&G EXP-NLABR		753		P9P	550		Maint Rel-Community	1,793.77
HECO	2004	921	A&G EXP-NLABR		755		P9P	550		Maint Rel-BOD	111,348.07
HECO	2004	921	A&G EXP-NLABR		756		P9P	550		Maint Rel-Invest	713,591.64
HECO	2004	921	A&G EXP-NLABR		760		P9P	550		Audits-Internal	10,890.67
HECO	2004	921	A&G EXP-NLABR		775		P9P	550		Empl Comp PolPracProc	42,545.15
HECO	2004	921	A&G EXP-NLABR		815		P9P	550		Dev Adm Actg Pol Proc	47,839.59
HECO	2004	921	A&G EXP-NLABR		819		P9P	550		Adm Tax Return & Reports	159,775.32
HECO	2004	921	A&G EXP-NLABR		825		P9P	550		Manage Cash	383.18
HECO	2004	921	A&G EXP-NLABR		826		P9P	550		Manage Financing	11,396.31
HECO	2004	921	A&G EXP-NLABR		836		P9P	550		Fin Rpls/StaInfo-Ext	470,644.65
HECO	2004	926	EE PENSION/BENEFIT		776		P9P	550		Ben Plan PolPracProc	1,496.15
HECO	2004	926	EE PENSION/BENEFIT		779		P9P	550		Adm Retirement Pgm	253,915.64

Due to the voluminous nature of the information, one copy (pages 21-128) will be provided to the Consumer Advocate and the Public Utilities Commission under separate transmittal.

(Revised 3-18-05)

CA-IR-7

Please provide complete copies of the consolidating financial statement workpapers (income statements and balance sheets) for the HEI financial statements issued publicly for calendar 2003 and for the quarter ended September 30, 2004. Include in your response the most detailed available stand-alone income statements and balance sheets for each legal entity within HEI for each period/date, as well as details regarding elimination entries and any reclassifications made

HECO Response:

The requested information for calendar 2003 and 2004 are attached as pages 2 to 36 and pages 37 to 61, respectively. These include the most detailed publicly available stand-alone income statements and balance sheets for each legal entity within HEI for calendar years 2003 and 2004.

HAWAIIAN ELECTRIC INDUSTRIES, INC. AND SUBSIDIARIES
Consolidating Schedule - Income (Loss) Information

Year ended December 31, 2003

(Unaudited)
(In thousands)

	Hawaiian Electric Industries, Inc.*	Hawaiian Electric Company, Inc. and subsidiaries	HEI Diversified Inc.	American Savings Bank, F.S.B. and subsidiaries	HEI Investments, Properties, Inc.	HEI Leasing, Inc.	HEI District Cooling Services, Inc.	Pacific Energy Conser- vation Services, Inc.	HEI Technologies Inc.	Hycap Manage- ment, Inc.	Hawaiian Electric Industries Capital Trust and subsidary Inc.	The Old Oahu Tug Services, Inc.	Reclassifi- cations and Eliminations	Consolidated
Revenues														
Electric utility	\$ -	1,396,685	-	-	-	-	-	-	-	-	-	-	-	\$ 1,396,685
Bank	-	-	-	371,320	-	-	-	-	-	-	-	-	-	371,320
Other	10,765	-	5,640	-	2,084	170	-	207	439	4	10,051	31	16,080	13,311
Equity in net income of subsidiaries	142,354	-	124	-	-	-	-	-	-	1,432	-	-	143,910	-
	153,119	1,396,685	5,764	371,320	2,084	170	-	207	439	1,436	10,051	31	159,990	1,781,316
Expenses														
Electric utility	-	1,220,120	-	-	-	-	-	-	-	-	-	-	-	1,220,120
Bank	-	-	-	278,565	-	-	-	-	-	-	-	-	-	278,565
Other	16,675	-	1,391	-	119	92	-	282	533	71	-	106	(210)	19,064
	16,675	1,220,120	1,391	278,565	119	92	-	282	533	71	-	106	(210)	1,517,749
Operating Income (loss)														
Electric utility	-	176,565	-	-	-	-	-	-	-	-	-	-	-	176,565
Bank	-	-	-	92,755	-	-	-	-	-	-	-	-	-	92,755
Other	136,444	-	4,373	-	1,965	78	-	(75)	(94)	1,365	10,051	(75)	159,780	(5,753)
	136,444	176,565	4,373	92,755	1,965	78	-	(75)	(94)	1,365	10,051	(75)	159,780	263,567
Interest expense-other than bank	(33,993)	(44,341)	(1,426)	-	-	-	-	-	-	-	-	-	(10,470)	(69,292)
Allowance for borrowed funds used during construction	-	1,914	-	-	-	-	-	-	-	-	-	-	-	1,914
Preferred stock dividends of subsidiaries	-	(915)	-	(11)	-	-	-	-	-	-	-	-	1,080	(2,006)
Preferred securities distributions of trust subsidiaries	-	(7,675)	-	-	-	-	-	-	-	-	-	-	8,360	(16,035)
Allowance for equity funds used during construction	-	4,267	-	-	-	-	-	-	-	-	-	-	-	4,267
Income (loss) from continuing operations before income taxes and minority interest	102,451	129,815	2,945	92,744	1,965	78	-	(75)	(94)	1,365	10,051	(75)	158,750	182,415
Income taxes (benefit)	(15,597)	49,824	(959)	30,959	(311)	-	-	-	(21)	478	-	(6)	-	64,367
Income (loss) from continuing operations before minority interest	118,048	79,991	3,904	61,785	2,276	78	-	(75)	(73)	887	10,051	(69)	158,750	118,048
Minority interest in net income of subsidiaries	-	-	-	124	-	-	-	-	-	-	1,432	-	(1,556)	-
Income (loss) from continuing operations before stock dividends of parent	118,048	79,991	3,904	61,861	2,276	78	-	(75)	(73)	887	8,619	(69)	157,194	118,048
Preferred stock dividends of parent	-	1,080	-	5,400	-	-	-	-	-	-	-	-	(6,480)	-
Preferred securities distributions	-	-	-	-	-	-	-	-	-	-	8,360	-	(8,360)	-
Income (loss) from continuing operations for common stock	118,048	78,911	3,904	58,261	2,276	78	-	(75)	(73)	887	259	(69)	142,354	118,048
Loss from discontinued operations	(3,870)	-	-	-	-	-	-	-	-	-	-	-	-	(3,870)
Net Income (loss) for common stock	\$ 114,178	\$ 78,911	\$ 3,904	\$ 58,261	\$ 2,276	\$ 78	\$ -	\$ (75)	\$ (73)	\$ 887	\$ 259	\$ (69)	\$ 142,354	\$ 114,178

	Hawaiian Electric Industries, Inc.	Hawaiian Electric Company, Inc. and subsidiaries	HEI Diversified, Inc.	American Savings Bank, F.S.B. and subsidiaries	HEI Investments, Inc.	HEI Properties, Inc.	HEI Leasing, Inc.	Pacific Energy Services, Inc.	HEI District Cooling, Technologies, Inc.	ProVision Technologies, Inc.	Hycap Management, Inc.	Hawaiian Electric Industries, Trust and subsidiary	The Old Oahu Tug and Services, Inc.	Reclassifications and Eliminations Dr. (Cr.) Consolidated
12,009	158	122	209,598	813	49	-	-	42	-	-	497	22	-	\$ 223,310
-	-	-	56,678	-	-	-	-	-	-	-	-	-	-	- 56,678
6,000	-	1,320	-	9,743	279	-	-	3	-	-	-	120,073	3,026	(140,444)
11,970	154,704	2	23,136	1,047	128	-	-	7	-	-	25	6	4	(3,311) 187,716
12,124	-	-	1,775,053	-	-	-	-	-	-	-	-	-	-	- 1,787,177
-	-	-	941,571	-	-	-	-	-	-	-	-	-	-	- 941,571
-	-	-	94,624	-	-	-	-	-	-	-	-	-	-	- 94,624
-	-	-	3,121,979	-	-	-	-	-	-	-	-	-	-	- 3,121,979
1,815	2,240,370	-	69,703	-	-	-	-	-	-	-	-	-	-	- 2,311,888
289	186,024	20,394	128,879	45,171	3,554	-	-	11	-	-	-	1,210	-	382,228
-	-	-	83,987	-	-	-	-	-	-	-	-	-	-	- 83,987
1,532,101	-	-	-	-	-	-	-	-	-	-	18,193	-	-	(1,550,294)
1,576,308	2,581,256	21,838	6,515,208	58,774	4,008	-	-	63	-	-	18,715	121,311	3,030	(1,697,353) \$ 9,201,158
6,350	84,452	597	42,628	14	5	-	-	15	-	-	2	25	3	\$ 132,780
-	-	-	4,026,250	-	-	-	-	-	-	-	-	-	-	- 4,026,250
14,371	6,000	-	-	-	-	-	-	-	-	-	-	-	-	- 20,371
-	-	-	831,335	-	-	-	-	-	-	-	-	-	-	- 831,335
-	-	-	1,017,053	-	-	-	-	-	-	-	-	-	-	- 1,017,053
469,000	699,420	17,073	-	-	-	-	-	-	-	-	-	-	-	- 1,064,420
(18,289)	170,841	-	30,798	41,329	71	-	-	-	-	-	-	(158)	-	- 226,590
-	71,982	-	-	-	-	-	-	-	-	-	-	-	-	- 71,982
-	233,969	-	-	-	-	-	-	-	-	-	-	-	-	- 233,969
12,845	235,958	(1,016)	24,005	447	(17)	-	-	17	-	-	(2)	-	1,207	- 273,442
487,277	1,502,520	16,854	5,972,067	41,790	59	-	-	32	-	-	-	25	1,052	7,877,721
-	100,000	-	-	-	-	-	-	-	-	-	-	-	-	- 200,000
-	34,283	-	75,113	-	-	-	-	-	-	-	-	-	-	- 75,000 34,406
-	-	-	3,304	-	-	-	-	-	-	-	-	18,193	-	- 21,497
-	134,293	-	78,417	-	-	-	-	-	-	-	-	116,193	-	- 96,487 234,406
888,431	381,416	11,504	244,568	9,060	3,968	-	-	640	-	-	18,385	3,083	2,443	875,077 888,431
197,774	563,215	(6,320)	221,109	5,904	(19)	-	-	(608)	-	-	350	-	(454)	783,176 197,774
2,828	(188)	-	(853)	-	-	-	-	-	-	-	-	-	(11)	(1,152) 2,826
1,089,031	944,443	5,184	484,724	14,984	3,949	-	-	31	-	-	18,715	3,083	1,978	1,069,031 1,069,031
576,308	2,581,256	21,838	6,515,208	58,774	4,008	-	-	63	-	-	18,715	121,311	3,030	1,897,353 \$ 9,201,158

HAWAIIAN ELECTRIC INDUSTRIES, INC.
INCOME STATEMENT
For the year ended December 31, 2003

Revenues	\$ 10,764,668.91	CIS
Expenses:		
Operating, administrative and general	15,926,611.31	
Depreciation and amortization of property, plant & equip	403,453.70	
Taxes, other than income taxes	<u>344,353.93</u>	
	<u>16,674,418.94</u>	CIS
Operating income (loss)	(5,909,750.03)	
Interest expense	<u>33,992,964.71</u>	CIS
Income (loss) before income tax benefits	(39,902,714.74)	
Income tax (benefits) expense	<u>(15,597,822.53)</u>	CIS
Income (loss) from continuing operations - HEI corp	<u>(24,304,892.21)</u>	
Adjustments to HEI Corp net income (loss):		
Add: Equity in earnings - continuing operations	<u>142,352,965.62</u>	CIS
Adjusted Income (loss) from continuing operations	<u>118,048,073.41</u>	
Add: Income (loss) on disposal - HEIPC		
Loss from disc. Ops. On HEIPC's general ledger	(6,016,647.00)	
HEIPC-tax benefits on HEI's general ledger	<u>2,146,451.00</u>	
HEIPC-net loss on disposal	<u>(3,870,196.00)</u>	CIS
	<u>\$ 114,177,877.41</u>	

HAWAIIAN ELECTRIC INDUSTRIES, INC.
BALANCE SHEET
December 31, 2003

Assets

Cash and equivalents	\$	12,009,196.50	CBS
Accounts receivable, net		11,970,206.38	CBS
Notes receivable from affiliated companies		6,000,000.00	CBS
Investment securities available-for-sale		12,123,999.69	CBS
Property, plant and equipment, net		1,815,220.00	CBS

HAWAIIAN ELECTRIC COMPANY, INC. AND SUBSIDIARIES
Consolidating Schedule - Income Information (Page 1 of 2)
Year ended December 31, 2003
(Unaudited)
(in thousands)

	Hawaiian Electric Company, Inc.	Hawaii Electric Light Company, Inc.	Maui Electric Company, Limited
Revenues			
Electric utility	\$ 966,867	214,540	\$ 215,667
Equity in net income (loss) of subsidiaries	29,459	-	-
	<u>996,326</u>	<u>214,540</u>	<u>215,667</u>
Expenses—Electric utility	<u>857,708</u>	<u>186,687</u>	<u>175,592</u>
Operating income	138,618	27,853	40,075
Interest expense	-33,161	-9,332	-10,148
Allowance for borrowed funds used during construction	1,658	80	176
Preferred stock dividends of subsidiaries	-	-	-
Preferred securities distributions of trust subsidiaries	-	-	-
Allowance for equity funds used during construction	<u>3,652</u>	<u>170</u>	<u>445</u>
Income(loss) from continuing operations before income taxes	110,767	18,771	30,548
Income taxes	<u>30,776</u>	<u>7,088</u>	<u>11,960</u>
Income (loss) from continuing operations	79,991	11,683	18,588
Preferred stock dividends	<u>1,080</u>	<u>534</u>	<u>381</u>
Net income (loss) for common stock	<u>\$ 78,911</u>	<u>11,149</u>	<u>\$ 18,207</u>

Continued on next page.

HAWAIIAN ELECTRIC COMPANY, INC. AND SUBSIDIARIES
Consolidating Schedule - Income Information (Page 2 of 2)
Year ended December 31, 2003
(Unaudited)
(in thousands)

(Continued)

	HECO Capital Trust I	HECO Capital Trust II	Renewable Hawaii, Inc.	Reclassifi- cations and Eliminations Dr. (Cr.)	Consolidated
Revenues					
Electric utility	\$ 4,149	3,763	-	8,301	\$ 1,396,685
Equity in net income (loss) of subsidiaries	-	-	-	29,459	-
	<u>4,149</u>	<u>3,763</u>	<u>-</u>	<u>37,760</u>	<u>1,396,685</u>
Expenses—Electric utility	<u>-</u>	<u>-</u>	<u>133</u>	<u>-</u>	<u>1,220,120</u>
Operating income (loss)	4,149	3,763	-133	37,760	176,565
Interest expense	-	-	-1	-8,301	-44,341
Allowance for borrowed funds used during construction	-	-	-	-	1,914
Preferred stock dividends of subsidiaries	-	-	-	915	-915
Preferred securities distributions of trust subsidiaries	-4,025	-3,650	-	-	-7,675
Allowance for equity funds used during construction	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>4,267</u>
Income(loss) from continuing before income taxes	124	113	-134	30,374	129,815
Income taxes	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>49,824</u>
Income (loss) from continuing	<u>124</u>	<u>113</u>	<u>-134</u>	<u>30,374</u>	<u>79,991</u>
Preferred stock dividends	<u>-</u>	<u>-</u>	<u>-</u>	<u>-915</u>	<u>1,080</u>
Net income (loss) for common stock	<u>\$ 124</u>	<u>113</u>	<u>-134</u>	<u>29,459</u>	<u>\$ 78,911</u>

HAWAIIAN ELECTRIC COMPANY, INC. AND SUBSIDIARIES
Consolidating Schedule - Balance Sheet Information (Page 1 of 2)
December 31, 2003
(Unaudited)
(in thousands)

	Hawaiian Electric Company, Inc.	Hawaii Electric Light Company, Inc.	Maui Electric Company, Limited
ASSETS			
Cash and equivalents	\$ 9	4	\$ 87
Notes receivable from affiliated companies	10,800	—	25,500
Accounts receivable and unbilled revenues, net	106,457	27,528	21,613
Property, plant and equipment, net	1,388,144	449,936	402,290
Other	135,592	23,377	27,055
Investments in subsidiaries, at equity	364,973	—	—
	<u>\$ 2,005,975</u>	<u>500,845</u>	<u>\$ 476,545</u>
LIABILITIES AND STOCKHOLDER'S EQUITY			
Liabilities			
Accounts payable	\$ 57,313	11,980	\$ 14,418
Short-term borrowings	31,500	10,800	—
Long-term debt, net	497,915	140,868	163,729
Deferred income taxes	137,919	20,079	12,843
Regulatory liabilities	42,235	18,935	10,712
Contributions in aid of construction	143,815	56,275	33,879
Other	128,542	60,269	48,769
	<u>1,039,239</u>	<u>319,206</u>	<u>284,350</u>
HECO-obligated trust preferred securities	—	—	—
Preferred stock-not subject to mandatory redemption	22,293	7,000	5,000
	<u>22,293</u>	<u>7,000</u>	<u>5,000</u>
Stockholder's equity			
Common stock	381,416	100,010	94,294
Retained earnings (deficit)	563,215	74,629	92,909
Accumulated other comprehensive loss	-188	—	-8
	<u>944,443</u>	<u>174,639</u>	<u>187,195</u>
	<u>\$ 2,005,975</u>	<u>500,845</u>	<u>\$ 476,545</u>

Continued on next page.

HAWAIIAN ELECTRIC COMPANY, INC. AND SUBSIDIARIES
Consolidating Schedule - Balance Sheet Information (Page 2 of 2)
December 31, 2003
(Unaudited)
(in thousands)

(Continued)

	HECO Capital	HECO Capital	Reclassifi- cations and Eliminations
ASSETS			
Current assets			
Cash and cash equivalents			
Accounts receivable			
Prepaid expenses			
Other current assets			
Property, plant, and equipment			
Land			
Buildings			
Equipment			
Other property, plant, and equipment			
Intangible assets			
Goodwill			
Other intangible assets			
Other assets			
Deferred tax assets			
Other deferred assets			
Liabilities			
Accounts payable			
Accrued liabilities			
Deferred liabilities			
Other liabilities			
Equity			
Common stock			
Retained earnings			
Other equity			

HEI DIVERSIFIED, INC.
INCOME STATEMENT
For the year ended December 31, 2003

Revenues:

Revenues	\$ 5,639,991.73	CIS
Equity in earnings - ASB Realty Corp.	123,849.01	CIS
	<u>5,763,840.74</u>	

Expenses:

Operating, administrative and general	<u>1,391,022.34</u>	CIS
---------------------------------------	---------------------	-----

Operating income (loss) **4,372,818.40**

Interest expense 1,427,311.16 CIS

Income (loss) before income tax benefits **2,945,507.24**

Income tax (benefits) expense (958,850.41) CIS

Net income (loss) **\$ 3,904,357.65**

HEI DIVERSIFIED, INC.
BALANCE SHEET
December 31, 2003

Assets

Cash	\$	121,560.93	CBS
Notes receivable-HEI		1,319,765.73	CBS
Interest receivable-HEI		2,440.45	CBS
Other		<u>20,394,118.70</u>	CBS
Total assets	\$	<u><u>21,837,885.81</u></u>	

Liabilities and capital

Accounts payable	\$	597,147.96	CBS
Taxes accrued		(1,016,539.63)	CBS
Long-term debt		<u>17,073,100.00</u>	CBS
Total liabilities		<u>16,653,708.33</u>	
Common stock		11,503,835.81	CBS
Retained earnings		<u>(6,319,658.33)</u>	CBS
Total stockholder's equity		<u>5,184,177.48</u>	
Total liab. & capitalization	\$	<u><u>21,837,885.81</u></u>	

AMERICAN SAVINGS BANK, F.S.B.
INCOME STATEMENT
For the year ended December 31, 2003

Revenues:

Revenues	\$ 371,319,826.83	CIS
Less: Minority interest	(123,849.01)	CIS
	<u>371,195,977.82</u>	

Expenses

	<u>278,564,943.42</u>	CIS
--	-----------------------	-----

Operating income (loss)	92,631,034.40	
--------------------------------	----------------------	--

Preferred dividends - other	<u>10,876.16</u>	CIS
-----------------------------	------------------	-----

Income (loss) before income tax benefits	92,620,158.24	
---	----------------------	--

Income tax (benefits) expense	<u>30,959,355.98</u>	CIS
-------------------------------	----------------------	-----

Net income (loss)	61,660,802.26	
--------------------------	----------------------	--

Preferred dividend - HEIDI	(5,400,000.00)	CIS
----------------------------	----------------	-----

<u>\$ 56,260,802.26</u>		
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AMERICAN SAVINGS BANK, F.S.B. AND SUBSIDIARIES
Consolidating Schedule – Income (Loss) Information
Year ended December 31, 2003
(Unaudited)
(in thousands)

	American Savings Bank, F.S.B.	American Savings Investment Services Corp.	ASB Service Corporation	AdCom- muni- cations, Inc.
Revenues				
Bank	\$ 302,646	9,857	313	\$ 11
Equity in net income (loss) of subsidiaries/ minority interest	63,482	—	—	—
	366,128	9,857	313	11
Expenses—Bank	274,313	7,571	38	16
Operating income (loss)	91,815	2,286	275	(5)
Income taxes	29,930	883	116	—
Income (loss) from continuing operations before minority interest	61,885	1,403	159	(5)
Minority interest in net income of subsidiaries	—	—	—	—
Income (loss) from continuing operations	61,885	1,403	159	(5)
Preferred stock dividends	5,400	—	—	—
Net income (loss) for common stock	<u>\$ 56,485</u>	<u>1,403</u>	<u>159</u>	<u>\$ (5)</u>

	ASB Realty Corporation	Reclassifi- cations and Elimi- nations Dr. (Cr.)	Consolidated
Revenues			
Bank	\$ 85,729	27,236	\$ 371,320
Equity in net income (loss) of subsidiaries/ minority interest	—	63,482	—
	85,729	90,718	371,320
Expenses—Bank	153	(3,526)	278,565
Operating income (loss)	85,576	87,192	92,755
Income taxes	30	—	30,959
Income (loss) from continuing operations before minority interest	85,546	87,192	61,796
Minority interest in net income of subsidiaries	—	124	124
Income (loss) from continuing operations	85,546	87,316	61,672
Preferred stock dividends	23,621	(23,610)	5,411
Net income (loss) for common stock	<u>\$ 61,925</u>	<u>63,706</u>	<u>\$ 56,261</u>

AMERICAN SAVINGS BANK, F.S.B.
BALANCE SHEET
December 31, 2003

Assets

Cash and cash equivalents	\$	209,597,714.42	CBS
Federal funds sold		56,678,062.73	CBS
Accounts receivable		23,135,779.10	CBS
Available-for-sale investment and mortgage-related securities		1,775,052,146.72	CBS
Available-for-sale investment and mortgage-related securities pledged for repurchase agreements		941,571,487.64	CBS
Held-to-maturity investment securities		94,624,700.00	CBS
Loans receivable, net		3,121,978,996.73	CBS
Property, plant and equipment, net		69,703,161.34	CBS
Other		128,878,773.74	CBS
Goodwill and other intangibles		93,987,280.22	CBS
Total assets	\$	6,515,208,102.64	

Liabilities and capital

Accounts payable	\$	42,628,243.56	CBS
Deposit liabilities		4,026,249,933.10	CBS
Securities sold under agreements to repurchase		831,335,315.95	CBS
Advances from Federal Home Loan Bank		1,017,052,400.00	CBS
Deferred income taxes		30,795,765.00	CBS
Other		24,005,073.94	CBS

Total liabilities 5,972,066,731.55

Preferred stock - other	113,000.00	A
Minority interest	3,303,980.68	CBS

Preferred stock - HEIDI	75,000,000.00	A
Common stock	244,567,929.19	CBS
Retained earnings	221,108,678.01	CBS
Accumulated other comprehensive income (loss)	(952,216.79)	CBS
Total stockholder's equity	<u>539,724,390.41</u>	

Total liab. & capitalization \$ 6,515,208,102.64

Preferred stock - other	113,000.00	
Preferred stock - HEIDI	75,000,000.00	
Σ A	<u>75,113,000.00</u>	CBS

AMERICAN SAVINGS BANK, F.S.B. AND SUBSIDIARIES
Consolidating Schedule - Balance Sheet Information (Page 1 of 2)
December 31, 2003
(Unaudited)
(in thousands)

	American Savings Bank, F.S.B.	American Savings Investment Services Corp.	ASB Service Corporation	AdCommuni- cations, Inc.
ASSETS				
Cash and equivalents	\$ 149,469	1,514	— \$	414
Federal funds sold	56,678	—	—	—
Accounts receivable and unbilled revenues, net	17,204	—	—	—
Available-for-sale investment and mortgage-related securities	1,055,514	—	—	—
Available-for-sale mortgage-related securities pledged for repurchase agreements	941,571	—	—	—
Held-to-maturity investment securities	94,624	—	—	—
Loans receivable, net	2,407,751	—	—	—
Property, plant and equipment, net	69,546	157	—	—
Other	129,308	445	1	—
Goodwill and other intangibles	93,097	890	—	—
investments in subsidiaries, at equity	1,835,355	—	—	—
	<u>\$ 6,850,117</u>	<u>3,006</u>	<u>1 \$</u>	<u>414</u>
LIABILITIES AND STOCKHOLDER'S EQUITY				
Liabilities				
Accounts payable	\$ 41,549	1,079	— \$	—
Deposit liabilities	4,365,343	—	—	—
Securities sold under agreements to repurchase	831,335	—	—	—
Advances from Federal Home Loan Bank	1,017,053	—	—	—
Deferred income taxes	30,904	-108	—	—
Other	23,612	168	—	—
	<u>6,309,796</u>	<u>1,139</u>	<u>—</u>	<u>—</u>
Preferred stock of bank subsidiary	—	—	—	—
Minority interests	—	—	—	—
Stockholder's equity				
Preferred stock	75,000	—	—	—
Common stock	244,568	1,990	1	61
Retained earnings (deficit)	221,706	-123	—	353
Accumulated other comprehensive income (loss)	-953	—	—	—
	<u>540,321</u>	<u>1,867</u>	<u>1</u>	<u>414</u>
	<u>\$ 6,850,117</u>	<u>3,006</u>	<u>1 \$</u>	<u>414</u>

(continued on next page)

AMERICAN SAVINGS BANK, F.S.B. AND SUBSIDIARIES
Consolidating Schedule - Balance Sheet Information (Page 2 of 2)
December 31, 2003
(Unaudited)
(in thousands)
(continued)

	ASB Realty Corporation	Reclassifi- cations and Elimi- nations Dr. (Cr.)	Consoli- dated
ASSETS			
Cash and equivalents	\$ 397,294	-339,093	\$ 209,598
Federal funds sold	-	-	56,678
Accounts receivable and unbilled revenues, net	5,932	-	23,136
Available-for-sale investment and mortgage-related securities	719,911	-372	1,775,053
Available-for-sale mortgage-related securities pledged for repurchase agreements	-	-	941,571
Held-to-maturity investment securities	-	-	94,624
Loans receivable, net	714,228	-	3,121,979
Property, plant and equipment, net	-	-	69,703
Other	1,385	-2,260	128,879
Goodwill and other intangibles	-	-	93,987
Investments in subsidiaries, at equity	-	-1,835,355	-
	<u>\$ 1,838,750</u>	<u>-2,177,080</u>	<u>\$ 6,515,208</u>
LIABILITIES AND STOCKHOLDER'S EQUITY			
Liabilities			
Accounts payable	\$ 2,260	2,260	\$ 42,628
Deposit liabilities	-	339,093	4,026,250
Securities sold under agreements to repurchase	-	-	831,335
Advances from Federal Home Loan Bank	-	-	1,017,053
Deferred income taxes	-	-	30,796
Other	-	-225	24,005
	<u>2,260</u>	<u>341,128</u>	<u>5,972,067</u>
Preferred stock of bank subsidiary	187,999	187,886	113
Minority interests	-	-3,304	3,304
Stockholder's equity			
Preferred stock	-	-	75,000
Common stock	1,653,720	1,655,772	244,568
Retained earnings (deficit)	-1,544	-717	221,109
Accumulated other comprehensive income (loss)	-3,685	-3,685	-953
	<u>1,648,491</u>	<u>1,651,370</u>	<u>539,724</u>
	<u>\$ 1,838,750</u>	<u>2,177,080</u>	<u>\$ 6,515,208</u>

HEI INVESTMENTS, INC.
INCOME STATEMENT
For the year ended December 31, 2003

Revenues	<u>\$ 2,084,097.86</u> CIS
Expenses:	
Operating, administrative and general	<u>119,221.98</u> CIS
Operating income (loss)	1,964,875.88
Interest expense	<u>12.30</u> CIS
Income (loss) before income tax benefits	1,964,863.58
Income tax (benefits) expense	<u>(310,990.00)</u> CIS
Net income (loss)	<u><u>\$ 2,275,853.58</u></u>

HEI INVESTMENTS, INC.
BALANCE SHEET
December 31, 2003

Assets

Cash	\$ 813,038.23	CBS
Notes receivable-HEI	9,742,770.58	CBS
Accounts receivable	1,046,662.29	CBS
Other assets	<u>45,171,729.46</u>	CBS
Total assets	<u>\$ 56,774,200.56</u>	

Liabilities and capital

Accounts payable	\$ 14,064.41	CBS
Deferred income taxes	41,328,793.87	CBS
Other liabilities	<u>447,028.95</u>	CBS
Total liabilities	<u>41,789,887.23</u>	
Common stock	9,079,687.38	CBS
Retained earnings	<u>5,904,625.95</u>	CBS
Total stockholder's equity	<u>14,984,313.33</u>	
Total liab. & capitalization	<u>\$ 56,774,200.56</u>	

HEI PROPERTIES, INC.
INCOME STATEMENT
For the year ended December 31, 2003

REVENUES	\$ 170,090.49	CIS
EXPENSES		
Administrative and general expense	92,479.23	CIS
NET INCOME (LOSS)	<u>\$ 77,611.26</u>	

HEI PROPERTIES, INC.
BALANCE SHEET
December 31, 2003

Assets

Cash	\$	49,110.06	CBS
Notes receivable-HEI		279,228.10	CBS
Accounts receivable		126,086.23	CBS
Other assets		<u>3,553,939.67</u>	CBS
Total assets	\$	<u><u>4,008,364.06</u></u>	

Liabilities and capital

Accounts payable	\$	5,300.00	CBS
Deferred income taxes		71,318.53	CBS
Taxes accrued		<u>(17,149.03)</u>	CBS
Total liabilities		<u>59,469.50</u>	
Common stock		3,968,416.02	CBS
Retained earnings		<u>(19,521.46)</u>	CBS
Total stockholder's equity		3,948,894.56	
Total liab. & capitalization	\$	<u><u>4,008,364.06</u></u>	

HEI LEASING, INC.
INCOME STATEMENT
For the ten months ended October 31, 2003

EXPENSES

Administrative and general expense

\$ 4,728.86 **CIS**

Interest on debt-HEI

8.33 **CIS**

NET INCOME (LOSS)

\$ (4,737.19)

Note: HEI Leasing, Inc. was dissolved in October 2003. Thus, no balance sheet as of December 31, 2003 has been provided.

PACIFIC ENERGY CONSERVATION SERVICES, INC.
INCOME STATEMENT
For the year ended December 31, 2003

REVENUES	\$ 207,672.65	CIS
EXPENSES		
Administrative and general expense	260,451.37	
Depreciation and amortization expense	(291.78)	
Taxes Other Than Income Taxes	<u>21,983.72</u>	
	<u>282,143.31</u>	CIS
NET INCOME (LOSS)	<u>\$ (74,470.66)</u>	

PACIFIC ENERGY CONSERVATION SERVICES, INC.
BALANCE SHEET
December 31, 2003

Assets

Cash	\$	42,397.29	CBS
Notes receivable-HEI		2,810.09	CBS
Accounts receivable		7,233.97	CBS
Other assets		<u>11,051.00</u>	CBS
Total assets	\$	<u><u>63,492.35</u></u>	

Liabilities and capital

Accounts payable	\$	14,951.00	CBS
Taxes accrued		<u>17,269.34</u>	CBS
Total liabilities		<u>32,220.34</u>	
Common stock		640,000.00	CBS
Retained earnings (deficit)		<u>(608,727.99)</u>	CBS
Total stockholder's equity		<u>31,272.01</u>	
Total liab. & capitalization	\$	<u><u>63,492.35</u></u>	

HEI DISTRICT COOLING, INC.
INCOME STATEMENT
For the ten months ended October 31, 2003

REVENUES	\$ 123.25	CIS
EXPENSES		
Administrative and general expense	257.04	CIS
Income taxes	<u>203.00</u>	CIS
NET INCOME (LOSS)	<u>\$ (336.79)</u>	

Note: HEI District Cooling, Inc. was dissolved in October 2003. Thus, no balance sheet as of December 31, 2003 has been provided.

PROVISION TECHNOLOGIES, INC.
INCOME STATEMENT
For the period ended July 14, 2003

REVENUES	\$ 438,637.04	CIS
EXPENSES		
Administrative and general expense	500,913.37	
Depreciation and amortization expense	8,050.79	
Taxes Other Than Income Taxes	23,482.69	
	<u>532,446.85</u>	CIS
Operating income (loss)	(93,809.81)	
Income taxes	<u>(20,653.00)</u>	CIS
NET INCOME (LOSS)	<u>\$ (73,156.81)</u>	

Note: ProVision Technologies, Inc. was sold on July 14, 2003. Thus, no balance sheet as of December 31, 2003 has been provided.

HYCAP MANAGEMENT, INC.
INCOME STATEMENT
For the year ended December 31, 2003

REVENUES		
Interest income	\$ 3,645.76	CIS
Equity in earnings of subsidiaries	<u>1,432,298.62</u>	CIS
	1,435,944.38	
EXPENSES		
Administrative and general expense	<u>71,163.49</u>	CIS
Operating income	1,364,780.89	
Income taxes	<u>477,673.00</u>	CIS
NET INCOME	<u><u>\$ 887,107.89</u></u>	

HYCAP MANAGEMENT, INC.
BALANCE SHEET
December 31, 2003

Assets

Cash	\$	497,327.00	CBS
Accounts receivable		24,692.19	CBS
Investment in HEI Preferred Funding, LP		<u>18,193,000.00</u>	CBS
Total assets	\$	<u><u>18,715,019.19</u></u>	

Liabilities and capital

Accounts payable	\$	1,692.57	CBS
Taxes accrued		<u>(2,019.00)</u>	CBS
Total liabilities		<u>(326.43)</u>	
Common stock		18,364,273.96	CBS
Retained earnings (deficit)		<u>351,071.66</u>	CBS
Total stockholder's equity		<u>18,715,345.62</u>	
Total liab. & capitalization	\$	<u><u>18,715,019.19</u></u>	

Hawaiian Electric Industries Capital Trust I and subsidiary
Consolidating Schedule - Income Information
Year ended December 31, 2003
(in thousands)

	Hawaiian Electric Industries Trust I	HEI Preferred Funding, LP	Reclassifi- cations and Eliminations Dr. (Cr.)	Consolidated	
Revenues					
Interest income	\$ -	\$ 10,051	\$ -	\$ 10,051	CIS
Equity in net income of subsidiaries	<u>8,619</u>	<u>-</u>	<u>8,619</u>	<u>-</u>	
	8,619	10,051	8,619	10,051	
Expenses					
Other	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	CIS
	-	-	-	-	
Operating income					
Other	8,619	10,051	8,619	10,051	
Minority interest in net income of subsidiary	<u>-</u>	<u>-</u>	<u>1,432</u>	<u>1,432</u>	CIS
Earnings before distribution on preferred securities	8,619	10,051	10,051	8,619	
Distribution on preferred securities	<u>8,360</u>	<u>-</u>	<u>-</u>	<u>8,360</u>	CIS
Earnings available for common securities	<u>\$ 259</u>	<u>\$ 10,051</u>	<u>\$ 10,051</u>	<u>\$ 259</u>	

Hawaiian Electric Industries Capital Trust I and subsidiary

Consolidating Schedule - Balance Sheet Information

December 31, 2003

(in thousands)

Assets	Hawaiian Electric Industries Trust I	HEI Preferred Funding, LP	Reclassifi- cations and Eliminations Dr. (Cr.)	Consolidated	
Cash and equivalents	\$ -	\$ 22	\$ -	\$ 22	CBS
Accounts receivable	-	6	-	6	CBS
Notes receivable	-	120,073	-	120,073	CBS
Other	-	1,210	-	1,210	CBS
Investment in subsidiary	103,093	-	(103,093)	-	
	<u>\$ 103,093</u>	<u>\$ 121,311</u>	<u>\$ (103,093)</u>	<u>\$ 121,311</u>	
Liabilities and stockholders' equity					
Accounts payable	\$ -	\$ 25	\$ -	\$ 25	CBS
	-	25	-	25	
HEI-obligated trust preferred securities	100,000	-	-	100,000	CBS
Minority interests	-	-	(18,193)	18,193	CBS
Stockholders' equity					
Common stock	3,093	121,286	121,286	3,093	CBS
Retained earnings (deficit)	-	-	-	-	
	<u>3,093</u>	<u>121,286</u>	<u>121,286</u>	<u>3,093</u>	
	<u>\$ 103,093</u>	<u>\$ 121,311</u>	<u>\$ 103,093</u>	<u>\$ 121,311</u>	

THE OLD OAHU TUG SERVICE, INC.
INCOME STATEMENT
For the year ended December 31, 2003

REVENUES	\$	30,598.32	CIS
EXPENSES		<u>105,934.62</u>	CIS
Operating income (loss)		(75,336.30)	
Income taxes		<u>(5,855.00)</u>	CIS
NET INCOME (LOSS)	\$	<u>(69,481.30)</u>	

THE OLD OAHU TUG SERVICE, INC.
BALANCE SHEET
December 31, 2003

Assets

Notes receivable-HEI	\$	3,026,361.27	CBS
Accounts receivable		3,732.89	CBS

Total assets

\$ 3,030,094.16

Liabilities and capital

Accounts payable	\$	3,430.24	CBS
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Deferred income taxes		(158,198.11)	CBS
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Other liabilities		<u>1,207,481.62</u>	CBS
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Total liabilities

1,052,713.75

Common stock		2,442,388.65	CBS
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Retained earnings (deficit)		(454,189.24)	CBS
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Accumulated other comprehensive loss		<u>(10,819.00)</u>	CBS
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Total stockholder's equity

1,977,380.41

Total liab. & capitalization

\$ 3,030,094.16

HEI
INCOME STATEMENT ELIMINATION SUMMARY
12/31/03

Interest income *	(10,470,007.99)	
Contract services income *	(207,644.72)	
Contract services income *	(2,135.23)	
Dividend income **	(5,400,000.00)	
	<u>(16,079,787.94)</u>	CIS

Contract services expense *	207,644.72	
Contract services expense *	2,135.23	
	<u>209,779.95</u>	CIS

Interest expense *	<u>10,470,007.99</u>	CIS
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Preferred dividend - ASB **	<u>5,400,000.00</u>	
Check total	-	

* Per elimination entires - income statement schedule
obtained from Lynette Tsuchiyama, HECO Accounting

** Per ASB income statement obtained from Sharon
Kanno, ASB Controllers

	HEI	HECO	HEIDI	ASB	HEIII	HEIPC	PECS	HEIDC	Provision	HEILI	LP	HEIPI	TOOTS
Investment Income													
HEI													
HECO	(70,449.42)		(24,612.93)		(80,727.98)	(6,805.38)	(27.93)	(123.25)	(301.21)		(8,610,800.00)	(2,705.70)	(30,598.32)
HEIII													
HEIDI													
ASB													
HEIPC	(157.58)		(215,378.80)								(1,427,311.16)		
PECS													
HEIDC													
PRO VIS													
HEILI													
HEIPI	(8.33)												
TOOTS													
MPG													
Total (10,470,007.99)													
REV FR HELCO													
		207,644.72					(207,644.72)						
PROVISION (Svs from Helco)													
		(2,135.23)							2,135.23				
Interest Expense													
LP	8,610,800.00		1,427,311.16										
HEI		70,449.42				157.58				8.33			
HECO													
HEIII	80,727.98												
HEIDI	24,612.93					215,378.80							
ASB													
HEIPC	6,805.38												
PECS	27.93												
HEIDC	123.25												
PRO VIS	301.21												
HEILI													
HEIPI	2,705.70												
TOOTS	30,598.32												
Total 10,470,007.99													

HEI
INTERCOMPANY TRANSACTIONS-BALANCE SHEET
12/31/2003

Accounts Receivable												
	HEI 12020	HECO	HELCO	MECO	HEIII	HEIDI	ASB	HYCAP	LP	HEIPC	PECS	TOOTS
HEI 12020	7,728.49	415,193.51	45,500.00		1,039,153.20		182,112.28					
HECO	778,959.71											
	780,672.13											
	65,000.00											
HELCO	87,876.31	44,692.86									7,291.80	
	65,000.00											
MECO	67,246.78	836,892.19										
Renewable Hawaii	2,424.34	9,021.82										
HEIII	13,572.40	492.01										
		455.05										
HEIDI	596,692.91	(8,617.20)										
ASB	13,578.00	3,287.37										
HEIPC	3,593.00	4,800.00										
PECS	1,000.00	2,300.00										
HEIPI	5,000.00	300.00										
TOOTS	470.12	184.84										
MPC		(912.76)										
HYCAP	184.10											
LP								24,692.19	1,692.57			
Total	3,273,155.85											
Notes Receivable												
LP												
HEI												
HECO	6,000,000.00				9,742,770.58	1,319,765.73			103,000,000.00	2,810.09	279,228.10	3,026,361.27
HEIII												
HEIDI												
ASB												
HEIPC	308,462.89					47,073,199.00			17,073,100.00			
PECS												
HEIPI												
TOOTS												
MPC	999,084.82											
Total	140,444,035.77	CBS										
Dividends Receivable												
HECO	24,859.59											
ASB												
TRUST I	0.03											
HYCAP												

Note: Intercompany amounts between HECO, MECO and HELCO are ignored since the elimination occurs at HECO. Also, intercompany receivable/payable with discontinued operations (HEIPC and MPC) are ignored as balances are reclassified to net assets from discontinued operations (Other Assets).

HEI
INTERCOMPANY TRANSACTIONS-BALANCE SHEET
12/31/2003

Accounts Payable

	HEI	HECO	HELCO	MECO	RHI	HEIII	HEIDI	ASB	HYCAP	LP	HEIPC	PECS	HEIPI	TOOTS
HEI		(137,595.85) *												
		(641,363.86)												
HECO				(65,000.00)	(2,424.34)	(13,572.40)	(596,692.91)	(13,578.00)				(1,000.00)	(5,000.00)	
HELCO	(422,922.00)	B		B	B			(3,287.37)						
	(45,500.00)	(14,443.81)		(673,782.10)	(9,621.82)	(492.01)	(455.05)	(6,600.00)				(2,300.00)	(300.00)	
MECO														
HEIII	(1,039,153.20)													
HEIDI														
ASB	(182,112.28)													
HEIPC														
PECS														
HEIPI														
TOOTS														
MPC														
HYCAP														
LP										(24,692.19)				
Total	(3,273,155.85)								(1,692.57)					

Notes Payable

LP	(103,000,000.00)													
HEI		(6,000,000.00)												
HECO														
HEIII	(9,742,770.58)													
HEIDI	(1,319,765.73)													
ASB														
HEIPC														
PECS		(2,810.09)												
HEIPI		(279,228.10)												
TOOTS		(3,026,361.27)												
MPC														
Total	(140,444,035.77)													
Long-term	(120,073,100.00)	CBS												
Short-term	(20,370,935.77)	CBS												

* Per Lynette Tsuchiyama, HECO accountant, the \$137,595.85 HEI payable was approved for payment on 12/31/03 and recorded as Accounts Payable and not Other AP & Accruals. As such, for consolidation purposes, it is not necessary to reclass the \$137,595.85 since the amount is included in HECO's Accounts Payable.
ZB = \$771,363.86 HECO BS - Represents intercompany payable on HECO's general ledger in "Other A/P and accruals." For financial reporting consolidation purposes, amount is reclassified to Accounts Payable and eliminated. RHI of \$2,424.34 was not reclassified - immaterial, pass.

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[illegible]

	Hycap Manage- ment, Inc.	The Old Oahu Tug Services, Inc.	Reclassifi- cations and Eliminations Dr. (Cr.)	Consolidated
1)	-	-	-	\$ 1,550,671
2)	-	-	-	364,284
3)	424	38	6,578	9,102
4)	-	-	<u>128,562</u>	-
5)	<u>424</u>	<u>38</u>	<u>135,140</u>	<u>1,924,057</u>
6)	-	-	-	1,376,768
7)	-	-	-	259,310
8)	50	180	(195)	17,019
9)	<u>50</u>	<u>180</u>	<u>(195)</u>	<u>1,653,097</u>
10)	-	-	-	173,903
11)	-	-	-	104,974
12)	374	(142)	134,945	(7,917)
13)	<u>374</u>	<u>(142)</u>	<u>134,945</u>	<u>270,960</u>
14)	-	-	(878)	(77,176)
15)	-	-	-	2,542
16)	-	-	1,080	(1,901)
17)	-	-	(105)	5,794
18)	374	(142)	135,042	200,219
19)	<u>131</u>	<u>(55)</u>	-	<u>92,480</u>
20)	243	(87)	135,042	107,739
21)	-	-	(97)	-
22)	243	(87)	134,945	107,739
23)	-	-	(6,480)	-
24)	243	(87)	128,465	107,739
25)	-	-	-	1,913
26)	-	-	66	-
27)	<u>243</u>	<u>(87)</u>	<u>128,531</u>	<u>\$ 109,652</u>

HAWAIIAN ELECTRIC INDUSTRIES, INC. AND SUBSIDIARIES
Consolidating Schedule - Balance Sheet Information
December 31, 2004
(Unaudited)
(in thousands)

Assets	Hawaiian Electric Industries, Inc.	Hawaiian Electric Company, Inc. and subsidiaries	HEI Diversified, Inc.	American Savings Bank, F.S.B. and subsidiaries	HEI Investments, Inc.	HEI Properties, Inc.	Pacific Energy Conser- vation Services, Inc.	Hycap Manage- ment, Inc.	The Old Oahu Tug Services, Inc.	Reclassifi- cations and Eliminations Dr. (Cr.)	Consolidated
Cash and equivalents	\$ 10,297	327	1	120,295	1,072	4	7	135	-	-	\$ 132,138
Federal funds sold	-	-	-	41,491	-	-	-	-	-	-	41,491
Notes receivable from affiliated companies	11,957	-	2,602	-	15,641	1,528	1	-	2,975	(34,704)	-
Accounts receivable and unbilled revenues, net	1,678	187,534	1,051	23,704	26	70	15	-	36	(5,581)	208,533
Available-for-sale investment and mortgage-related securities	-	-	-	2,034,091	-	-	-	-	-	-	2,034,091
Available-for-sale mortgage-related securities pledged for repurchase agreements	-	-	-	919,281	-	-	-	-	-	-	919,281
Held-to-maturity investment securities	-	-	-	97,365	-	-	-	-	-	-	97,365
Loans receivable, net	-	-	-	3,249,191	-	-	-	-	-	-	3,249,191
Property, plant and equipment, net	1,818	2,348,154	-	72,330	-	-	1	-	-	-	2,422,303
Other	4,902	234,970	17,377	117,494	42,021	1,510	-	-	-	(3,303)	414,971
Goodwill and other intangibles	-	-	-	91,263	-	-	-	-	-	-	91,263
Investment in consolidated subsidiaries, at equity	1,616,189	-	-	-	-	-	-	-	-	(1,616,189)	-
	\$ 1,646,841	2,770,985	21,031	6,766,505	58,760	3,112	24	135	3,011	(1,659,777)	\$ 9,610,627
Liabilities and stockholders' equity											
Liabilities											
Accounts payable	\$ 9,218	105,176	930	44,163	16	6	3	-	12	5,581	\$ 153,943
Deposit liabilities	-	-	-	4,296,172	-	-	-	-	-	-	4,296,172
Short-term borrowings	22,747	88,568	-	-	-	-	-	-	-	34,704	76,611
Securities sold under agreements to repurchase	-	-	-	811,438	-	-	-	-	-	-	811,438
Advances from Federal Home Loan Bank	-	-	-	988,231	-	-	-	-	-	-	988,231
Long-term debt, net	414,000	752,735	-	-	-	-	-	-	-	-	1,166,735
Deferred income taxes	(19,774)	189,193	1	19,297	41,131	71	-	-	(154)	-	229,765
Regulatory liabilities, net	-	88,459	-	-	-	-	-	-	-	-	88,459
Contributions in aid of construction	-	235,505	-	-	-	-	-	-	-	-	235,505
Other	9,705	259,952	(436)	47,478	808	-	21	(99)	989	-	318,418
	435,896	1,719,588	495	6,206,779	41,955	77	24	(99)	847	40,285	8,365,277
Preferred stock of subsidiaries - not subject to mandatory redemption	-	-	-	112	-	-	-	-	-	-	34,405
Minority interests	-	34,293	-	3,303	-	-	-	-	-	3,303	-
	-	34,293	-	3,415	-	-	-	-	-	3,303	34,405
Stockholders' equity											
Common stock	1,010,090	384,600	10,570	320,501	9,080	3,968	710	(359)	2,443	731,513	1,010,090
Retained earnings (deficit)	208,998	632,779	9,966	243,001	7,725	(933)	(710)	593	(270)	892,151	208,998
Accumulated other comprehensive loss	(8,143)	(275)	-	(7,191)	-	-	-	-	(9)	(7,475)	(8,143)
	1,210,945	1,017,104	20,536	556,311	16,805	3,035	-	234	2,164	1,616,189	1,210,945
	\$ 1,646,841	2,770,985	21,031	6,766,505	58,760	3,112	24	135	3,011	1,659,777	\$ 9,610,627

HAWAIIAN ELECTRIC INDUSTRIES, INC.
INCOME STATEMENT
Year ended December 31, 2004
(Unaudited)

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Revenues	\$	<u>7,972,930.47</u>	CIS
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Expenses:

Operating, administrative and general	14,944,912.67		
Depreciation and amortization of property, plant & equip	327,963.46		
Taxes, other than income taxes	<u>340,594.24</u>		
		<u>15,613,470.37</u>	CIS

Operating income (loss)		<u>(7,640,539.90)</u>	
--------------------------------	--	------------------------------	--

Interest expense		<u>28,028,782.83</u>	CIS
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Income (loss) before income tax benefits		<u>(35,669,322.73)</u>	
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Income tax (benefits) expense		<u>(14,866,807.17)</u>	CIS
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Income (loss) from continuing operations - HEI corp		<u><u>(20,802,515.56)</u></u>	
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Adjustments to HEI Corp net income (loss):

Add: Equity in earnings - continuing operations	128,464,344.91		CIS
Add: Equity in earnings - HEI Captial Trust I	<u>76,135.91</u>		CIS

Adjusted Income (loss) from continuing operations		<u><u>107,737,965.26</u></u>	
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Add: Income (loss) on disposal - HEIPC			
Loss from disc. Ops. On HEIPC's general ledger	2,769,399.75		
HEIPC-tax benefits on HEI's general ledger	<u>(922,044.00)</u>		
HEIPC-net loss on disposal	<u>1,847,355.75</u>		CIS
HEIPC-tax benefits on HEIDI's general ledger	<u>66,219.29</u>		CIS

	\$	<u><u>109,651,540.30</u></u>	
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HAWAIIAN ELECTRIC INDUSTRIES, INC.
BALANCE SHEET
December 31, 2004
(Unaudited)

Assets

Cash and equivalents	\$	10,297,457.56	CBS
Accounts receivable, net		1,677,591.62	CBS
Notes receivable from affiliated companies		11,957,265.51	CBS
Property, plant and equipment, net		1,817,820.37	CBS
Other		4,902,553.13	CBS
Investment in subsidiaries, at equity		1,616,188,139.09	CBS

Total assets \$ 1,646,840,827.28

Liabilities and stockholders' equity

Accounts payable	\$	9,218,315.79	CBS
Notes payable to affiliated companies		22,747,000.26	CBS
Long-term debt, net		414,000,000.00	CBS
Deferred income taxes		(19,774,303.46)	CBS
Other		9,705,225.00	CBS
		<u>435,896,237.59</u>	

Stockholders' equity:

Common stock		1,010,090,384.54	CBS
Retained earnings		208,998,241.45	CBS
Accumulated other comprehensive income (loss)		(8,144,036.30)	CBS
		<u>1,210,944,589.69</u>	

Total liabilities and stockholders' equity \$ 1,646,840,827.28

HAWAIIAN ELECTRIC COMPANY, INC. AND SUBSIDIARIES
Consolidating Schedule - Income Information
Year ended December 31, 2004
(Unaudited)
(in thousands)

	Hawaiian Electric Company, Inc.	Hawaii Electric Light Company, Inc.	Maui Electric Company, Limited	Renewable Hawaii, Inc.	Reclassifi- cations and Eliminations Dr. (Cr.)	Consolidated
Revenues						
Electric utility	\$ 1,057,449	241,822	252,034	–	634	\$ 1,550,671
Equity in net income of subsidiaries	31,746	–	–	–	31,746	–
	<u>1,089,195</u>	<u>241,822</u>	<u>252,034</u>	<u>–</u>	<u>32,380</u>	<u>1,550,671</u>
Expenses—Electric utility	<u>953,740</u>	<u>212,403</u>	<u>210,572</u>	<u>53</u>	<u>–</u>	<u>1,376,768</u>
Operating income (loss)	135,455	29,419	41,462	(53)	32,380	173,903
Interest expense	(31,625)	(8,670)	(9,927)	–	(634)	(49,588)
Allowance for borrowed funds used during construction	2,312	75	155	–	–	2,542
Preferred stock dividends of subsidiaries	–	–	–	–	915	(915)
Allowance for equity funds used during construction	<u>5,226</u>	<u>162</u>	<u>406</u>	<u>–</u>	<u>–</u>	<u>5,794</u>
Income(loss) from continuing operations before income taxes	111,368	20,986	32,096	(53)	32,661	131,736
Income taxes	<u>29,111</u>	<u>8,150</u>	<u>12,218</u>	<u>–</u>	<u>–</u>	<u>49,479</u>
Income (loss) from continuing operations	82,257	12,836	19,878	(53)	32,661	82,257
Preferred stock dividends	<u>1,080</u>	<u>534</u>	<u>381</u>	<u>–</u>	<u>(915)</u>	<u>1,080</u>
Net income (loss) for common stock	<u>\$ 81,177</u>	<u>12,302</u>	<u>19,497</u>	<u>(53)</u>	<u>31,746</u>	<u>\$ 81,177</u>

HAWAIIAN ELECTRIC COMPANY, INC. AND SUBSIDIARIES
Consolidating Schedule - Balance Sheet Information
December 31, 2004
(Unaudited)
(in thousands)

	Hawaiian Electric Company, Inc.	Hawaii Electric Light Company, Inc.	Maui Electric Company, Limited	Renewable Hawaii, Inc.	Reclassifi- cations and Eliminations Dr. (Cr.)	Consolidated
ASSETS						
Cash and equivalents	\$ 9	3	17	298	-	\$ 327
Notes receivable from affiliated companies	34,850	-	7,750	-	(42,600)	-
Accounts receivable and unbilled revenues, net	127,404	32,100	27,616	-	414	187,534
Property, plant and equipment, net	1,461,069	478,582	408,503	-	-	2,348,154
Other	165,310	33,642	36,018	-	-	234,970
Investments in subsidiaries, at equity	376,212	-	-	-	(376,212)	-
	<u>\$ 2,164,854</u>	<u>544,327</u>	<u>479,904</u>	<u>298</u>	<u>(418,398)</u>	<u>\$ 2,770,985</u>
LIABILITIES AND STOCKHOLDER'S EQUITY						
Liabilities						
Accounts payable	\$ 74,724	18,770	11,360	-	(322)	\$ 105,176
Short-term borrowings	96,318	34,850	-	-	42,600	88,568
Long-term debt, net	468,049	130,908	153,778	-	-	752,735
Deferred income taxes	146,812	23,590	18,791	-	-	189,193
Regulatory liabilities, net	52,866	22,386	13,207	-	-	88,459
Contributions in aid of construction	144,322	56,041	35,142	-	-	235,505
Other	142,366	64,277	53,213	4	(92)	259,952
	<u>1,125,457</u>	<u>350,822</u>	<u>285,491</u>	<u>4</u>	<u>42,186</u>	<u>1,719,588</u>
Preferred stock-not subject to mandatory redemption	<u>22,293</u>	<u>7,000</u>	<u>5,000</u>	<u>-</u>	<u>-</u>	<u>34,293</u>
Stockholder's equity						
Common stock	384,600	100,644	94,921	481	196,046	384,600
Retained earnings (deficit)	632,779	85,861	94,492	(187)	180,166	632,779
Accumulated other comprehensive loss	(275)	-	-	-	-	(275)
	<u>1,017,104</u>	<u>186,505</u>	<u>189,413</u>	<u>294</u>	<u>376,212</u>	<u>1,017,104</u>
	<u>\$ 2,164,854</u>	<u>544,327</u>	<u>479,904</u>	<u>298</u>	<u>418,398</u>	<u>\$ 2,770,985</u>

HEI DIVERSIFIED, INC.
INCOME STATEMENT
Year ended December 31, 2004
(Unaudited)

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Revenues:

Revenues	\$ 5,492,315.68	CIS
Equity in earnings - ASB Realty Corp.	96,734.51	CIS
	<u>5,589,050.19</u>	

Expenses:

Operating, administrative and general	<u>811,033.12</u>	CIS
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Operating income (loss)	4,778,017.07
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Interest expense	<u>437,140.84</u>	CIS
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Income (loss) before income tax benefits	4,340,876.23
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Income tax (benefits) expense	<u>(923,147.37)</u>	CIS
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Income (loss) from continuing operations	5,264,023.60
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	<u>66,217.29</u>	CIS
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Net income (loss)	<u>\$ 5,330,240.89</u>
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HEI DIVERSIFIED, INC.
BALANCE SHEET
December 31, 2004
(Unaudited)

CA-IR-7
DOCKET NO. 04-0113
PAGE 44 OF 61
(Revised 3-18-05)

Assets

Cash	\$	1,339.00	CBS
Notes receivable-HEI		2,602,343.41	CBS
Accounts receivable		1,050,830.78	CBS
Other assets		<u>17,376,595.19</u>	CBS
Total assets	\$	<u>21,031,108.38</u>	

Liabilities and capital

Accounts payable	\$	929,918.99	CBS
Deferred income taxes		1,390.00	CBS
Taxes accrued		<u>(436,314.00)</u>	CBS
Total liabilities		<u>494,994.99</u>	
Common stock		10,570,530.83	CBS
Retained earnings		<u>9,965,582.56</u>	CBS
Total stockholder's equity		<u>20,536,113.39</u>	
Total liab. & capitalization	\$	<u>21,031,108.38</u>	

AMERICAN SAVINGS BANK, F.S.B. AND SUBSIDIARIES
Consolidating Schedule – Income (Loss) Information
Year ended December 31, 2004
(Unaudited)
(in thousands)

	American Savings Bank, F.S.B.	American Savings Investment Services Corp.	AdCom- muni- cations, Inc.	ASB Realty Corporation	Reclassifi- cations and Elimi- nations Dr. (Cr.)	Consolidated
Revenues						
Bank	\$ 318,029	4,232	8	72,959	30,944	\$ 364,284
Equity in net income of subsidiaries/ minority interest	49,205	–	–	–	49,205	–
	367,234	4,232	8	72,959	80,149	364,284
Expenses–Bank	262,545	3,888	2	306	(7,431)	259,310
Operating income	104,689	344	6	72,653	72,718	104,974
Income taxes	58,227	137	–	40	–	58,404
Income from continuing operations before minority interest	46,462	207	6	72,613	72,718	46,570
Minority interest in net income of subsidiaries	–	–	–	–	97	97
Income from continuing operations	46,462	207	6	72,613	72,815	46,473
Preferred stock dividends	5,400	–	–	23,621	(23,610)	5,411
Net income for common stock	\$ 41,062	207	6	48,992	49,205	\$ 41,062

AMERICAN SAVINGS BANK, F.S.B. AND SUBSIDIARIES
Consolidating Schedule - Balance Sheet Information
December 31, 2004
(Unaudited)
(in thousands)

	American Savings Bank, F.S.B.	American Savings Investment Services Corp.	AdCom- muni- cations, Inc.	ASB Realty Corporation	Reclassifi- cations and Elimi- nations Dr. (Cr.)	Consoli- dated
ASSETS						
Cash and equivalents	\$ 116,760	1,649	420	634,466	(633,000)	\$ 120,295
Federal funds sold	41,491	-	-	-	-	41,491
Accounts receivable and unbilled revenues, net	18,866	-	-	4,838	-	23,704
Available-for-sale investment and mortgage-related securities	1,424,726	-	-	609,656	(291)	2,034,091
Available-for-sale mortgage-related securities pledged for repurchase agreements	919,281	-	-	-	-	919,281
Held-to-maturity investment securities	97,365	-	-	-	-	97,365
Loans receivable, net	2,661,884	-	-	587,307	-	3,249,191
Property, plant and equipment, net	72,238	92	-	-	-	72,330
Other	116,745	346	-	2,371	(1,968)	117,494
Goodwill and other intangibles	90,373	890	-	-	-	91,263
Investments in subsidiaries, at equity	1,835,748	-	-	-	(1,835,748)	-
	<u>\$ 7,395,477</u>	<u>2,977</u>	<u>420</u>	<u>1,838,638</u>	<u>(2,471,007)</u>	<u>\$ 6,766,505</u>
LIABILITIES AND STOCKHOLDER'S EQUITY						
Liabilities						
Accounts payable	\$ 43,430	733	-	1,968	1,968	\$ 44,163
Deposit liabilities	4,929,172	-	-	-	633,000	4,296,172
Securities sold under agreements to repurchase	811,438	-	-	-	-	811,438
Advances from Federal Home Loan Bank	988,231	-	-	-	-	988,231
Deferred income taxes	19,405	(108)	-	-	-	19,297
Other	46,975	278	-	-	(225)	47,478
	<u>6,838,651</u>	<u>903</u>	<u>-</u>	<u>1,968</u>	<u>634,743</u>	<u>6,206,779</u>
Preferred stock of bank subsidiary	-	-	-	187,998	187,886	112
Minority interests	-	-	-	-	(3,303)	3,303
Stockholder's equity						
Common stock	320,501	1,990	61	1,653,720	1,655,771	320,501
Retained earnings (deficit)	243,516	84	359	(1,162)	(204)	243,001
Accumulated other comprehensive loss	(7,191)	-	-	(3,886)	(3,886)	(7,191)
	<u>556,826</u>	<u>2,074</u>	<u>420</u>	<u>1,648,672</u>	<u>1,651,681</u>	<u>556,311</u>
	<u>\$ 7,395,477</u>	<u>2,977</u>	<u>420</u>	<u>1,838,638</u>	<u>2,471,007</u>	<u>\$ 6,766,505</u>

HEI INVESTMENTS, INC.
INCOME STATEMENT
Year ended December 31, 2004
(Unaudited)

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(Revised 3-18-05)

Revenues	<u>\$ 2,314,921.97</u> CIS
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Expenses:

Operating, administrative and general	<u>182,913.33</u> CIS
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Operating income (loss)	2,132,008.64
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Income tax (benefits) expense	<u>311,488.14</u> CIS
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Net income (loss)	<u><u>\$ 1,820,520.50</u></u>
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HEI INVESTMENTS, INC.
BALANCE SHEET
December 31, 2004
(Unaudited)

Assets

Cash	\$ 1,072,427.42	CBS
Notes receivable-HEI	15,640,601.03	CBS
Accounts receivable	25,796.77	CBS
Other assets	<u>42,021,130.62</u>	CBS
Total assets	<u>\$ 58,759,955.84</u>	

Liabilities and capital

Accounts payable	\$ 15,898.18	CBS
Deferred income taxes	41,131,351.22	CBS
Other liabilities	<u>807,872.61</u>	CBS
Total liabilities	<u>41,955,122.01</u>	
Common stock	9,079,687.38	CBS
Retained earnings	<u>7,725,146.45</u>	CBS
Total stockholder's equity	16,804,833.83	
Total liab. & capitalization	<u>\$ 58,759,955.84</u>	

HEI PROPERTIES, INC.
INCOME STATEMENT
Year ended December 31, 2004
(Unaudited)

REVENUES	\$ (832,659.67) CIS
EXPENSES	
Administrative and general expense	81,386.31 CIS
NET INCOME (LOSS)	<u>\$ (914,045.98)</u>

HEI PROPERTIES, INC.
BALANCE SHEET
December 31, 2004
(Unaudited)

Assets

Cash	\$	4,355.30	CBS
Notes receivable-HEI		1,528,065.51	CBS
Accounts receivable		70,029.75	CBS
Other assets		<u>1,509,817.52</u>	CBS
Total assets	\$	<u>3,112,268.08</u>	

Liabilities and capital

Accounts payable	\$	6,100.00	CBS
Deferred income taxes		71,318.53	CBS
Other		<u>0.97</u>	CBS
Total liabilities		<u>77,419.50</u>	
Common stock		3,968,416.02	CBS
Retained earnings		<u>(933,567.44)</u>	CBS
Total stockholder's equity		<u>3,034,848.58</u>	
Total liab. & capitalization	\$	<u>3,112,268.08</u>	

PACIFIC ENERGY CONSERVATION SERVICES, INC.
INCOME STATEMENT
Year ended December 31, 2004
(Unaudited)

REVENUES	\$ 194,559.10	CIS
EXPENSES	<u>296,478.26</u>	CIS
NET INCOME (LOSS)	<u><u>\$ (101,919.16)</u></u>	

PACIFIC ENERGY CONSERVATION SERVICES, INC.
BALANCE SHEET
December 31, 2004
(Unaudited)

Assets

Cash	\$ 7,143.18	CBS
Notes receivable-HEI	857.90	CBS
Accounts receivable	15,106.31	CBS
Plant and equipment, net	1,171.85	CBS
Other assets	<u>-</u>	CBS
Total assets	<u>\$ 24,279.24</u>	

Liabilities and capital

Accounts payable	\$ 3,500.00	CBS
Other	<u>21,426.39</u>	CBS
Total liabilities	<u>24,926.39</u>	
Common stock	710,000.00	CBS
Retained earnings (deficit)	<u>(710,647.15)</u>	CBS
Total stockholder's equity	<u>(647.15)</u>	
Total liab. & capitalization	<u>\$ 24,279.24</u>	

HYCAP MANAGEMENT, INC.
INCOME STATEMENT
Year ended December 31, 2004
(Unaudited)

REVENUES		
Interest income	\$ 3,181.34	CIS
Equity in earnings of subsidiaries	<u>421,235.18</u>	CIS
	424,416.52	
EXPENSES		
Administrative and general expense	<u>50,022.61</u>	CIS
Operating income	374,393.91	
Income taxes	<u>131,038.00</u>	CIS
NET INCOME	<u>\$ 243,355.91</u>	

HYCAP MANAGEMENT, INC.
BALANCE SHEET
December 31, 2004
(Unaudited)

Assets

Cash \$ 135,214.29 CBS

Accounts receivable 0.11 CBS

Total assets \$ 135,214.40

Liabilities and capital

Taxes accrued \$ (99,654.00) CBS

Total liabilities (99,654.00)

Common stock (359,559.17) CBS

Retained earnings (deficit) 594,427.57 CBS

Total stockholder's equity 234,868.40

Total liab. & capitalization \$ 135,214.40

THE OLD OAHU TUG SERVICE, INC.
INCOME STATEMENT
Year ended December 31, 2004
(Unaudited)

REVENUES	\$ 38,407.22	CIS
EXPENSES	<u>180,155.79</u>	CIS
Operating income (loss)	(141,748.57)	
Income taxes	<u>(55,154.00)</u>	CIS
NET INCOME (LOSS)	<u>\$ (86,594.57)</u>	

THE OLD OAHU TUG SERVICE, INC.
BALANCE SHEET
December 31, 2004
(Unaudited)

Assets

Notes receivable-HEI	\$ 2,975,132.41	CBS
Accounts receivable	36,035.97	CBS

Total assets	<u>\$ 3,011,168.38</u>
--------------	------------------------

Liabilities and capital

Accounts payable	\$ 11,689.90	CBS
Deferred income taxes	(154,308.11)	CBS
Other liabilities	<u>991,065.44</u>	CBS

Total liabilities	<u>848,447.23</u>
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Common stock	2,442,388.65	CBS
Retained earnings (deficit)	(270,381.50)	CBS
Accumulated other comprehensive loss	<u>(9,286.00)</u>	CBS
Total stockholder's equity	<u>2,162,721.15</u>	

Total liab. & capitalization	<u>\$ 3,011,168.38</u>
------------------------------	------------------------

HEI

INCOME STATEMENT ELIMINATION SUMMARY

Year ended December 31, 2004

Interest income *	(878,293.22)
Contract services income *	(194,496.55)
Dividend income *	(105,000.00)
Dividend income **	(5,400,000.00)
	<u>(6,577,789.77) CIS</u>

Contract services expense *	194,496.55
	<u>194,496.55 CIS</u>

Interest expense *	<u>878,293.22 CIS</u>
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Preferred dividend - HECO *	<u>105,000.00</u>
Preferred dividend - ASB **	<u>5,400,000.00</u>

* Per elimination entires - income statement schedule
obtained from Lynette Tsuchiyama, HECO Accounting

** Per ASB income statement obtained from Sharon
Kanno, ASB Controller's Office

HEI INTERCOMPANY TRANSACTIONS-INCOME STATEMENT Year ended December 31, 2004									
	HEI	HECO	HEIDI	ASB	HEIII	HEIPC	PECS	HEIPI	TOOTS
Investment Income									
HEI									
HECO	(537,687.44)		(34,968.79)		(168,689.93)	(8,934.75)	(62.55)	(16,427.99)	(37,297.88)
HEIII									
HEIDI	(16,877.00)								
ASB									
HEIPC	(462.39)		(57,346.89)						
HEIPC II			(408,394.29) A						
PECS									
HEIPI									
TOOTS									
MPC									
Total	(878,293.22)								
REV FR HELCO									
Div Inc fr Heco	(105,000.00)						(194,496.55)		
Interest Expense									
LP	2,535,402.22 B		420,263.64 B						
HEI		537,687.44	16,877.00						
HECO									
HEIII	168,689.93								
HEIDI	34,968.79						57,346.89		
ASB							408,394.29 A		
HEIPC	8,934.75								
PECS	62.55								
HEIPI	16,427.99								
TOOTS	37,297.88								
Total	878,293.22								

A = Amounts are eliminated at discontinued operations level.
B = HEI Preferred Funding, LP interest expense should not be eliminated as effective 1/1/04 LP is not consolidated.

at discontinue operations level.

HEI INTERCOMPANY TRANSACTIONS-BALANCE SHEET 12/31/2004											
	HEI	HECO	HELCO	MECO	RHI	HEIII	HEIDI	ASB	HEIPC	PECS	HEIPI
Accounts Payable											
HEI		(208,265.84)									
		C	(109,016.92)	B			(928,887.01)				
		(205,000.21)	(112,046.92)	(108,941.39)	(130.59)	(10,000.00)	(929,246.04)	(2,000.00)	-	(2,000.00)	(6,000.00)
		B						(61.78)			
HECO	(1,683,998.00)						(672.98)	(2,500.00)	(2,400.00)	(1,500.00)	(100.00)
HELCO	(325,977.31)										
MECO	(833,579.00)										
HEIII											
HEIDI											
ASB								(1,042,451.00)			
HEIPC	(46.00)										
PECS											
HEIPI											
TOOTS	(23,601.00)										
MPC											
HYCAP											
RHI											
Total	(5,469,280.21)										
Notes Payable											
LP											
HEI		(11,957,265.51)							(1,150,000.00)	A	
HECO											
HELCO											
MECO											
HEIII	(15,640,601.03)										
HEIDI	(2,602,343.41)										
ASB											
HEIPC											
PECS	(857.90)										
HEIPI	(1,528,065.51)										
TOOTS	(2,975,132.41)										
MPC											
HYCAP											
RHI											
Total	(34,704,265.77)	CBS									

A = Amounts are eliminated at discontinue operations level.
B = Represents intercompany payable on HECO's general ledger in "Other Accounts Payable and Accruals" which is a component of "Other liabilities" on HEI's Consolidating Balance Sheet. For financial reporting consolidation purposes, amounts is reclassified to "Accounts Payable" and eliminated. ΣB = 423,089.11

INTERCOMPANY TRANSACTIONS-BALANCE SHEET											
12/31/2004											
	HEI	HECO	HELCO	MECO	HEIII	HEIDI	ASB	HEIPC	PECS	HEIPI	TOOTS
Interest Receivable											
HEI					25,796.77	8,110.78			16.91	2,516.59	4,927.63
HECO	43,819.75										
HEIII											
HEIDI											
ASB											
HEIPC											
PECS											
HEIPI											
TOOTS											
MPC											
RHI											
Total	85,188.43										
Interest Payable											
LP											
HEI		(43,819.75)									
HECO											
HEIII	(25,796.77)										
HEIDI	(8,110.78)										
ASB											
HEIPC											
PECS											
HEIPI											
TOOTS											
MPC											
RHI											
Total	(85,188.43)										

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Please provide complete copies of the consolidating financial statement workpapers (income statements and balance sheets) for the HEI financial statements issued publicly for calendar 2003 and for the quarter ended September 30, 2004. Include in your response the most detailed available stand-alone income statements and balance sheets for each legal entity within HEI for each period/date, as well as details regarding elimination entries and any reclassifications made in preparing consolidated public financial statements.

HECO Response:

The requested information for calendar 2003 is attached as pages 2 to 36 to this response. These include the most detailed publicly available stand-alone income statements and balance sheets for each legal entity within HEI for calendar 2003. The information for quarter ended September 30, 2004 will not be provided since it is not publicly available. Instead, the information for calendar 2004 will be provided when it becomes publicly available at the end of February, 2005.

HAWAIIAN ELECTRIC INDUSTRIES, INC. AND SUBSIDIARIES
Consolidating Schedule - Income (Loss) Information

Year ended December 31, 2003

(Unaudited)
(in thousands)

	Hawaiian Electric Industries, Inc.*	Hawaiian Electric Company, Inc. and subsidiaries	HEI Diversified, Inc.	American Savings Bank, F.S.B. and subsidiaries	HEI Investments, Inc.	HEI Properties, Inc.	HEI Leasing, Inc.	Pacific Energy Conser- vation Services, Inc.	HEI District Cooling Technologies Inc.	ProVision Technologies Inc.	Hycap Manage- ment, Inc.	Hawaiian Electric Industries Capital Trust (a) subsidiary	The Oahu Company and subsidiaries	Eliminations	Dr. (Cr.)	Consolidated
Revenues																
Electric utility	\$ -	1,396,685	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ 1,396,685
Bank	-	-	-	371,320	-	-	-	-	-	-	-	-	-	-	-	371,320
Other	10,765	-	5,640	-	2,084	170	-	207	-	439	-	10,051	31	16,080	-	13,311
Equity in net income of subsidiaries	142,354	-	124	-	-	-	-	-	-	-	-	-	-	-	-	-
	153,119	1,396,685	5,764	371,320	2,084	170	-	207	-	-	-	10,051	31	143,910	-	1,781,316
Expenses																
Electric utility	-	1,220,120	-	-	-	-	-	-	-	-	-	-	-	-	-	1,220,120
Bank	-	-	-	278,565	-	-	-	-	-	-	-	-	-	-	-	278,565
Other	16,675	-	1,391	-	119	92	5	282	-	533	71	-	106	(210)	-	19,064
	16,675	1,220,120	1,391	278,565	119	92	5	282	-	533	71	-	106	(210)	-	1,517,749
Operating income (loss)																
Electric utility	-	176,565	-	-	-	-	-	-	-	-	-	-	-	-	-	176,565
Bank	-	-	-	92,755	-	-	-	-	-	-	-	-	-	-	-	92,755
Other	136,444	-	4,373	-	1,965	78	-	(75)	-	(94)	1,365	10,051	(75)	159,780	-	(5,753)
	136,444	176,565	4,373	92,755	1,965	78	-	(75)	-	(94)	1,365	10,051	(75)	159,780	-	263,567
Interest expense--other than bank	(33,993)	(44,341)	(1,428)	-	-	-	-	-	-	-	-	-	-	(10,470)	-	(69,292)
Allowance for borrowed funds used during construction	-	1,914	-	-	-	-	-	-	-	-	-	-	-	-	-	1,914
Preferred stock dividends of subsidiaries	-	(915)	-	(11)	-	-	-	-	-	-	-	-	-	1,080	-	(2,006)
Preferred securities distributions of trust subsidiaries	-	(7,675)	-	-	-	-	-	-	-	-	-	-	-	8,360	-	(16,035)
Allowance for equity funds used during construction	-	4,267	-	-	-	-	-	-	-	-	-	-	-	-	-	4,267
Income (loss) from continuing operations before income taxes and minority interest	102,451	129,815	2,945	1,965	78	78	(5)	(75)	-	(94)	1,365	10,051	(75)	158,750	-	182,415
Income taxes (benefit)	(15,597)	49,824	(959)	(311)	-	-	-	-	-	(21)	478	-	(6)	-	-	64,367
Income (loss) from continuing operations before minority interest	118,048	79,991	1,986	1,654	78	78	(5)	(75)	-	(73)	887	10,051	(69)	158,750	-	118,048
Minority interest in net income of subsidiaries	-	-	-	124	-	-	-	-	-	-	-	1,432	-	(1,555)	-	-
Income (loss) from continuing operations	118,048	79,991	1,986	1,778	78	78	(5)	(75)	-	(73)	887	11,483	(69)	157,194	-	118,048
Preferred stock dividends of parent	-	-	-	5,400	-	-	-	-	-	-	-	8,360	-	(6,480)	-	-
Preferred securities distributions	-	-	-	-	-	-	-	-	-	-	-	-	-	(8,360)	-	-
Income (loss) from continuing operations for common stock	118,048	79,991	1,986	1,778	78	78	(5)	(75)	-	(73)	887	11,483	(69)	157,194	-	118,048
Loss from discontinued operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(3,870)
Net income (loss) for common stock	\$ 114,178	\$ 78,911	\$ 3,904	\$ 56,261	\$ 2,276	\$ 78	\$ (5)	\$ (75)	\$ -	\$ (73)	\$ 887	\$ 259	\$ (69)	\$ 142,354	\$ -	\$ 114,178

HAWAIIAN ELECTRIC INDUSTRIES, INC. AND SUBSIDIARIES
Consolidating Schedule - Balance Sheet Information
December 31, 2003
(Unaudited)
(In thousands)

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DOCKET NO. 04-0113
PAGE 3 of 36

	Hawaiian Electric Industries, Inc.	Hawaiian Electric Company, Inc. and subsidiaries	Hawaiian Electric Company, Inc.	HEI Diversified, Inc.	American Savings Bank, F.S.B. and subsidiaries	HEI Investments, Inc.	HEI Properties, Inc.	HEI Leasing, Inc.	Pacific Energy Conservation Services, Inc.	HEI District Cooling, Inc.	ProVision Technologies, Inc.	Hycap Management, Inc.	Hawaiian Electric Industries Capital Trust I and subsidiary	The Old Oahu Trust and subsidiary	Real Estate Holdings and eliminations	Dr. (Cr.)	Consolidated
Assets																	
Cash and equivalents	\$ 12,009	158	122	122	209,598	813	49	-	42	-	-	497	-	-	-	\$	223,310
Federal funds sold	-	-	-	-	56,678	-	-	-	-	-	-	-	-	-	-	-	56,678
Notes receivable from affiliated companies	6,000	-	-	1,320	-	9,743	279	-	3	-	-	-	120,073	3,026	(140,444)	-	-
Accounts receivable and unbilled revenues, net	11,970	154,704	2	2	23,136	1,047	126	-	7	-	-	-	6	4	(3,311)	-	187,716
Available-for-sale investment and mortgage-related securities	12,124	-	-	-	1,775,053	-	-	-	-	-	-	-	-	-	-	-	1,787,177
Available-for-sale mortgage-related securities pledged for repurchase agreements	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Held-to-maturity investment securities	-	-	-	-	941,571	-	-	-	-	-	-	-	-	-	-	-	941,571
Loans receivable, net	-	-	-	-	94,624	-	-	-	-	-	-	-	-	-	-	-	94,624
Property, plant and equipment, net	1,815	2,240,370	-	-	3,121,979	-	-	-	-	-	-	-	-	-	-	-	3,121,979
Other	289	186,024	20,394	20,394	69,703	45,171	3,554	-	11	-	-	-	1,210	-	(3,304)	-	2,311,888
Goodwill and other intangibles	-	-	-	-	93,987	-	-	-	-	-	-	-	-	-	-	-	93,987
Investment in subsidiaries, at equity	1,532,101	-	-	-	-	-	-	-	-	-	-	18,193	-	-	(1,550,294)	-	-
	\$ 1,576,308	2,581,256	21,838	21,838	6,515,208	56,774	4,008	-	63	-	-	18,715	121,311	3,030	(1,697,353)	\$	9,201,158
Liabilities and stockholders' equity																	
Liabilities																	
Accounts payable	\$ 8,350	84,452	597	597	42,628	-	5	-	15	-	-	2	25	3	3,311	\$	132,780
Deposit liabilities	-	-	-	-	4,026,250	-	-	-	-	-	-	-	-	-	-	-	4,026,250
Short-term borrowings	14,371	6,000	-	-	-	-	-	-	-	-	-	-	-	-	20,371	-	-
Securities sold under agreements to repurchase	-	-	-	-	1,017,053	-	-	-	-	-	-	-	-	-	-	-	831,335
Advances from Federal Home Loan Bank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,017,053
Long-term debt, net	468,000	699,420	-	-	-	-	-	-	-	-	-	-	-	-	120,073	-	1,064,420
Deferred income taxes	(16,289)	170,841	-	-	30,796	41,329	71	-	-	-	-	-	-	(158)	-	-	226,590
Regulatory liabilities	-	71,882	-	-	-	-	-	-	-	-	-	-	-	-	-	-	71,882
Contributions in aid of construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	233,969
Other	12,845	5,956	(1,016)	(1,016)	24,005	447	(17)	-	17	-	-	(2)	-	1,207	-	-	273,442
	487,271	1,302,520	16,654	16,654	5,972,067	41,790	59	-	32	-	-	-	25	1,052	143,755	-	7,877,721
Minority interests																	
HEI and HECO-obligated preferred securities of trust subsidiaries	-	100,000	-	-	-	-	-	-	-	-	-	-	100,000	-	-	-	200,000
Preferred stock of subsidiaries - not subject to mandatory redemption	-	34,293	-	-	75,113	-	-	-	-	-	-	-	-	-	75,000	-	34,406
Other minority interests	-	-	-	-	3,304	-	-	-	-	-	-	-	18,193	-	21,497	-	-
	-	134,293	-	-	78,417	-	-	-	-	-	-	-	118,193	-	96,497	-	234,406
Stockholders' equity																	
Common stock	888,431	381,416	11,504	11,504	244,568	9,080	3,968	-	640	-	-	18,365	3,093	2,443	675,077	-	888,431
Retained earnings (deficit)	197,774	563,215	(6,320)	(6,320)	221,109	5,904	(19)	-	(609)	-	-	350	-	(454)	783,176	-	197,774
Accumulated other comprehensive loss	2,826	(189)	-	-	(953)	-	-	-	-	-	-	-	-	(11)	(1,152)	-	2,826
	1,089,031	944,443	5,184	5,184	464,724	14,984	3,949	-	31	-	-	18,715	3,093	1,978	1,457,101	-	1,089,031
	\$ 1,576,308	2,581,256	21,838	21,838	6,515,208	56,774	4,008	-	63	-	-	18,715	121,311	3,030	1,697,353	\$	9,201,158

HAWAIIAN ELECTRIC INDUSTRIES, INC.
INCOME STATEMENT
For the year ended December 31, 2003

Revenues	\$ 10,764,668.91	CIS
Expenses:		
Operating, administrative and general	15,926,611.31	
Depreciation and amortization of property, plant & equip	403,453.70	
Taxes, other than income taxes	344,353.93	
	<u>16,674,418.94</u>	CIS
Operating income (loss)	(5,909,750.03)	
Interest expense	<u>33,992,964.71</u>	CIS
Income (loss) before income tax benefits	(39,902,714.74)	
Income tax (benefits) expense	<u>(15,597,822.53)</u>	CIS
Income (loss) from continuing operations - HEI corp	(24,304,892.21)	
Adjustments to HEI Corp net income (loss):		
Add: Equity in earnings - continuing operations	<u>25,432,965.62</u>	CIS
Adjusted Income (loss) from continuing operations	118,040,733.41	
Add: Income (loss) on disposal - HEIPC		
Loss from disc. Ops. On HEIPC's general ledger	(6,016,647.00)	
HEIPC-tax benefits on HEI's general ledger	2,146,451.00	
HEIPC-net loss on disposal	<u>(3,870,196.00)</u>	CIS
	<u>\$ 114,177,877.41</u>	

HAWAIIAN ELECTRIC INDUSTRIES, INC.
BALANCE SHEET
December 31, 2003

Assets

Cash and equivalents	\$	12,009,196.50	CBS
Accounts receivable, net		11,970,206.38	CBS
Notes receivable from affiliated companies		6,000,000.00	CBS
Investment securities available-for-sale		12,123,999.69	CBS
Property, plant and equipment, net		1,815,330.30	CBS
Other		288,212.98	CBS
Investment in subsidiaries, at equity		1,532,101,244.01	CBS

Total assets

\$ 1,576,308,189.86

Liabilities and stockholders' equity

Accounts payable	\$	8,349,909.50	CBS
Notes payable to affiliated companies		14,370,935.77	CBS
Long-term debt, net		468,000,000.00	CBS
Deferred income taxes		(16,288,785.46)	CBS
Other		12,845,367.73	CBS
		487,277,427.54	

Stockholders' equity:

Common stock		888,431,134.06	CBS
Retained earnings		197,773,534.33	CBS
Accumulated other comprehensive income		2,826,093.93	CBS
		1,089,030,762.32	

Total liabilities and stockholders' equity

\$ 1,576,308,189.86

HAWAIIAN ELECTRIC COMPANY, INC. AND SUBSIDIARIES
Consolidating Schedule - Income Information (Page 1 of 2)
Period ended December 31, 2003
(Unaudited)
(in thousands)

	Hawaiian Electric Company, Inc.	Hawaii Electric Light Company, Inc.	Maui Electric Company, Limited
Revenues			
Electric utility	\$ 966,867	214,540	\$ 215,667
Equity in net income (loss) of subsidiaries	29,459	-	-
	<u>996,326</u>	<u>214,540</u>	<u>215,667</u>
Expenses—Electric utility	<u>857,708</u>	<u>186,687</u>	<u>175,592</u>
Operating income	138,618	27,853	40,075
Interest expense	-33,161	-9,332	-10,148
Allowance for borrowed funds used during construction	1,658	80	176
Preferred stock dividends of subsidiaries	-	-	-
Preferred securities distributions of trust subsidiaries	-	-	-
Allowance for equity funds used during construction	3,652	170	445
Income(loss) from continuing operations before income taxes	110,767	18,771	30,548
Income taxes	30,776	7,088	11,960
Income (loss) from continuing operations	<u>79,991</u>	<u>11,683</u>	<u>18,588</u>
Preferred stock dividends	1,080	534	381
Net income (loss) for common stock	<u>\$ 78,911</u>	<u>\$ 11,149</u>	<u>\$ 18,207</u>

Continued on next page.

HAWAIIAN ELECTRIC COMPANY, INC. AND SUBSIDIARIES

Consolidating Schedule - Income Information (Page 2 of 2)

Year ended December 31, 2003

(Unaudited)

(in thousands)

(Continued)

	HECO Capital Trust I	HECO Capital Trust II	Renewable Hawaii, Inc.	Reclassifi- cations and Eliminations Dr. (Cr.)	Consolidated
Revenues					
Electric utility	\$ 4,149	3,763	-	8,301	\$ 1,396,685
Equity in net income (loss) of subsidiaries	-	-	-	29,459	-
	4,149	3,763	-	37,760	1,396,685
Expenses—Electric utility	-	-	133	-	1,220,120
Operating income (loss)	4,149	3,763	-133	37,760	176,565
Interest expense	-	-	-1	-8,301	-44,341
Allowance for borrowed funds used during construction	-	-	-	-	1,914
Preferred stock dividends of subsidiaries	-	-	-	915	-915
Preferred securities distributions of trust subsidiaries	-4,028	-3,650	-	-	-7,675
Allowance for equity funds used during construction	-	-	-	-	4,267
Income(loss) from continuing before income taxes	124	113	-134	30,374	129,815
Income taxes	-	-	-	-	49,824
Income (loss) from continuing	124	113	-134	30,374	79,991
Preferred stock dividends	-	-	-	-915	1,080
Net income (loss) for common stock	\$ 124	113	-134	29,459	\$ 78,911

HAWAIIAN ELECTRIC COMPANY, INC. AND SUBSIDIARIES
Consolidating Schedule - Balance Sheet Information (Page 1 of 2)
December 31, 2003
(Unaudited)
(in thousands)

	Hawaiian Electric Company, Inc.	Hawaii Electric Light Company, Inc.	Maui Electric Company, Limited
ASSETS			
Cash and equivalents	\$ 9	4	\$ 87
Notes receivable from affiliated companies	10,800	—	25,500
Accounts receivable and unbilled revenues, net	106,457	27,528	21,613
Property, plant and equipment, net	1,388,144	449,936	402,290
Other	135,592	23,377	27,055
Investments in subsidiaries, at equity	364,973	—	—
	<u>\$ 2,005,975</u>	<u>500,845</u>	<u>\$ 476,545</u>
LIABILITIES AND STOCKHOLDER'S EQUITY			
Liabilities			
Accounts payable	\$ 57,313	11,980	\$ 14,418
Short-term borrowings	31,500	10,800	—
Long-term debt, net	497,915	140,868	163,729
Deferred income taxes	137,919	20,079	12,843
Regulatory liabilities	42,235	18,935	10,712
Contributions in aid of construction	143,815	56,275	33,879
Other	128,542	60,269	48,769
	<u>1,039,239</u>	<u>319,206</u>	<u>284,350</u>
HECO-obligated trust preferred securities	—	—	—
Preferred stock-not subject to mandatory redemption	22,293	7,000	5,000
	<u>22,293</u>	<u>7,000</u>	<u>5,000</u>
Stockholder's equity			
Common stock	416	100,010	94,294
Retained earnings (deficit)	56,115	74,629	92,909
Accumulated other comprehensive loss	—	—	-8
	<u>94,441</u>	<u>174,639</u>	<u>187,195</u>
	<u>\$ 2,005,975</u>	<u>500,845</u>	<u>\$ 476,545</u>

HAWAIIAN ELECTRIC COMPANY, INC. AND SUBSIDIARIES
Consolidating Schedule - Balance Sheet Information (Page 2 of 2)

December 31, 2003

(unaudited)
(in thousands)

(Continued)

	HECO Capital Trust I	HECO Capital Trust II	RHI	Reclassifi- cations and Eliminations Dr. (Cr.)	Consolidated
ASSETS					
Cash and equivalents	\$ -	-	58	-	\$ 158
Notes receivable from affiliated companies	51,546	51,546	-	-139,392	-
Accounts receivable and unbilled revenues, net	-	-	-	-894	154,704
Property, plant and equipment, net	-	-	-	-	2,240,370
Other	-	-	-	-	186,024
Investments in subsidiaries, at equity	-	-	-	-364,973	-
	<u>\$ 51,546</u>	<u>51,546</u>	<u>58</u>	<u>-505,259</u>	<u>\$ 2,581,256</u>
LIABILITIES AND STOCKHOLDER'S EQUITY					
Liabilities					
Accounts payable	-	-	-	-741	\$ 84,452
Short-term borrowings	-	-	-	36,300	6,000
Long-term debt, net	-	-	-	103,092	699,420
Deferred income taxes	-	-	-	-	170,841
Regulatory liabilities	-	-	-	-	71,882
Contributions in aid of construction	-	-	-	-	233,969
Other	-	-	11	1,635	235,956
	<u>-</u>	<u>-</u>	<u>11</u>	<u>140,286</u>	<u>1,502,520</u>
HECO-obligated trust preferred securities	50,000	50,000	-	-	100,000
Preferred stock-not subject to mandatory redemption	-	-	-	-	34,293
	<u>50,000</u>	<u>50,000</u>	<u>-</u>	<u>-</u>	<u>134,293</u>
Stockholder's equity					
Common stock	1,546	1,546	181	197,577	381,416
Retained earnings (deficit)	-	-	-134	167,404	563,215
Accumulated other comprehensive loss	-	-	-	-8	-188
	<u>1,546</u>	<u>1,546</u>	<u>47</u>	<u>364,973</u>	<u>944,443</u>
	<u>\$ 51,546</u>	<u>51,546</u>	<u>58</u>	<u>505,259</u>	<u>\$ 2,581,256</u>

HEI DIVERSIFIED, INC.

INCOME STATEMENT

For the year ended December 31, 2003

HEI DIVERSIFIED, INC.
BALANCE SHEET
December 31, 2003

Assets		
Cash	\$ 121,560.93	CBS
Notes receivable - HEI	1,319,765.73	CBS
Interest receivable - HEI	2,440.45	CBS
Other	<u>20,394,118.70</u>	CBS
Total assets	<u>\$ 21,837,885.81</u>	
Liabilities and capital		
Accounts payable	\$ 597,147.96	CBS
Taxes accrued	(1,016,539.63)	CBS
Long-term debt	<u>17,073,100.00</u>	CBS
Total liabilities	<u>16,653,708.33</u>	
Common stock	11,503,835.81	CBS
Retained earnings	<u>(6,319,658.33)</u>	CBS
Total stockholder's equity	<u>5,184,177.48</u>	
Total liab. & capitalization	<u>\$ 21,837,885.81</u>	

AMERICAN SAVINGS BANK, F.S.B.
INCOME STATEMENT
For the year ended December 31, 2003

Revenues:
Revenues

\$ 371,319,826.83 **CIS**

AMERICAN SAVINGS BANK, F.S.B. AND SUBSIDIARIES
Consolidating Schedule – Income (Loss) Information
Year ended December 31, 2003
(Unaudited)
(in thousands)

	American Savings Bank, F.S.B.	American Savings Investment Services Corp.	ASB Service Corporation	AdCom- muni- cations, Inc.
Revenues				
Bank	\$ 302,646	9,857	313	\$ 11
Equity in net income (loss) of subsidiaries/ minority interest	63,482	—	—	—
	366,128	9,857	313	11
Expenses—Bank	274,313	7,571	38	16
Operating income (loss)	91,815	2,286	275	(5)
Income taxes	29,930	883	116	—
Income (loss) from continuing operations before minority interest	61,885	1,403	159	(5)
Minority interest in net income of subsidiaries	—	—	—	—
Income (loss) from continuing operations	61,885	1,403	159	(5)
Preferred stock dividends	5,400	—	—	—
Net income (loss) for common stock	56,485	1,403	159	(5)

	ASB Realty Corporation	Reclassifi- cations and Elimi- nations Dr. (Cr.)	Consolidated
Revenues			
Bank	\$ 85,729	27,236	\$ 371,320
Equity in net income (loss) of subsidiaries/ minority interest	—	63,482	—
	85,729	90,718	371,320
Expenses—Bank	153	(3,526)	278,565
Operating income (loss)	85,576	87,192	5,755
Income taxes	30	—	3,559
Income (loss) from continuing operations before minority interest	85,546	87,192	61,796
Minority interest in net income of subsidiaries	—	124	124
Income (loss) from continuing operations	85,546	87,316	61,672
Preferred stock dividends	23,621	(23,610)	5,411
Net income (loss) for common stock	\$ 61,925	63,706	\$ 56,261

AMERICAN SAVINGS BANK, F.S.B.
BALANCE SHEET
December 31, 2003

Assets

Cash and cash equivalents

\$ 209,597,714.42 CBS

Federal funds sold

50,000,000.00 CBS

AMERICAN SAVINGS BANK, F.S.B. AND SUBSIDIARIES
Consolidating Schedule - Balance Sheet Information (Page 1 of 2)
December 31, 2003
(Unaudited)
(in thousands)

	American Savings Bank, F.S.B.	American Savings Investment Services Corp.	ASB Service Corporation	AdCommuni- cations, Inc.
ASSETS				
Cash and equivalents	\$ 149,469	1,514	— \$	414
Federal funds sold	56,678	—	—	—
Accounts receivable and unbilled revenues, net	17,204	—	—	—
Available-for-sale investments and mortgage-related securities	1,055,514	—	—	—
Available-for-sale mortgage-related securities pledged for repurchase agreements	941,571	—	—	—
Held-to-maturity investment securities	94,624	—	—	—
Loans receivable, net	2,407,751	—	—	—
Property, plant and equipment, net	69,546	157	—	—
Other	129,308	445	1	—
Goodwill and other intangibles	93,097	890	—	—
Investments in subsidiaries, at equity	1,835,355	—	—	—
	<u>\$ 6,850,117</u>	<u>3,006</u>	<u>1 \$</u>	<u>414</u>
LIABILITIES AND STOCKHOLDER'S EQUITY				
Liabilities				
Accounts payable	\$ 1,549	1,079	— \$	—
Deposit liabilities	4,365,843	—	—	—
Securities sold under agreements to repurchase	831,356	—	—	—
Advances from Federal Home Loan Bank	1,017,053	—	—	—
Deferred income taxes	30,904	-108	—	—
Other	23,612	168	—	—
	<u>6,309,796</u>	<u>1,139</u>	<u>—</u>	<u>—</u>
Preferred stock of bank subsidiary	—	—	—	—
Minority interests	—	—	—	—
Stockholder's equity				
Preferred stock	75,000	—	—	—
Common stock	244,568	1,990	1	61
Retained earnings (deficit)	221,706	-123	—	353
Accumulated other comprehensive income (loss)	-953	—	—	—
	<u>540,321</u>	<u>1,867</u>	<u>1</u>	<u>414</u>
	<u>\$ 6,850,117</u>	<u>3,006</u>	<u>1 \$</u>	<u>414</u>

(continued on next page)

AMERICAN SAVINGS BANK, F.S.B. AND SUBSIDIARIES
Consolidating Schedule - Balance Sheet Information (Page 2 of 2)
December 31, 2003
(Unaudited)
(in thousands)
(continued)

	ASB Realty Corporation	Reclassifi- cations and Elimi- nations Dr. (Cr.)	Consoli- dated
ASSETS			
Cash and equivalents	\$ 397,294	-339,093	\$ 209,598
Federal funds sold	-	-	56,678
Accounts receivable and unbilled revenues, net	5,932	-	23,136
Available-for-sale investment and mortgage-related securities	719,911	-372	1,775,053
Available-for-sale mortgage-related securities pledged for repurchase agreements	-	-	941,571
Held-to-maturity investment securities	-	-	94,624
Loans receivable, net	714,228	-	3,121,979
Property, plant and equipment, net	-	-	69,703
Other	1,385	-2,260	128,879
Goodwill and other intangibles	-	-	93,987
Investments in subsidiaries, at equity	-	-1,835,355	-
	<u>\$ 1,838,750</u>	<u>-2,177,080</u>	<u>\$ 6,515,208</u>
LIABILITIES AND STOCKHOLDER'S EQUITY			
Liabilities			
Accounts payable	\$ 2,260	2,260	\$ 42,628
Deposit liabilities	-	339,093	4,026,250
Securities sold under agreements to repurchase	-	-	831,335
Advances from Federal Home Loan Bank	-	-	1,017,053
Deferred income taxes	-	-	30,796
Other	-	-225	24,005
	<u>2,260</u>	<u>341,128</u>	<u>5,972,067</u>
Preferred stock of bank subsidiary	187,999	87,886	113
Minority interests	-	304	3,304
Stockholder's equity			
Preferred stock	-	-	75,000
Common stock	1,653,720	1,655,772	244,568
Retained earnings (deficit)	-1,544	-717	221,109
Accumulated other comprehensive income (loss)	-3,685	-3,685	-953
	<u>1,648,491</u>	<u>1,651,370</u>	<u>539,724</u>
	<u>\$ 1,838,750</u>	<u>2,177,080</u>	<u>\$ 6,515,208</u>

HEI INVESTMENTS, INC.
INCOME STATEMENT
For the year ended December 31, 2003

Revenues	<u>\$ 2,084,097.86</u> CIS
Expenses:	
Operating, administrative and general	<u>119,221.98</u> CIS
Operating income (loss)	1,964,875.88
Interest expense	<u>12.30</u> CIS
Income (loss) before income tax benefits	1,964,863.58
Income tax (benefits) expense	<u>(310,990.00)</u> CIS
Net income (loss)	<u><u>\$ 2,275,853.58</u></u>

HEI INVESTMENTS, INC.
BALANCE SHEET
December 31, 2003

Assets		
Cash	\$ 813,038.23	CBS
Notes receivable-HEI	9,742,770.58	CBS
Accounts receivable	1,046,662.29	CBS
Other assets	<u>45,171,729.46</u>	CBS
Total assets	<u>\$ 56,774,200.56</u>	
Liabilities and capital		
Accounts payable	\$ 14,064.41	CBS
Deferred income taxes	41,328,793.87	CBS
Other liabilities	<u>447,028.95</u>	CBS
Total liabilities	<u>41,789,887.23</u>	
Common stock	9,079,687.38	CBS
Retained earnings	<u>5,904,625.95</u>	CBS
Total stockholder's equity	<u>14,984,313.33</u>	
Total liab. & capitalization	<u>\$ 56,774,200.56</u>	

HEI PROPERTIES, INC.
INCOME STATEMENT
For the year ended December 31, 2003

REVENUE \$ 170,090.49 CIS

EXPENSES
Administrative and general expense 92,479.23 CIS

NET INCOME (LOSS) \$ 77,611.26

HEI PROPERTIES, INC.
BALANCE SHEET
December 31, 2003

Assets

Cash	\$	49,110.06	CBS
Notes receivable-HEI		279,228.10	CBS
Accounts receivable		126,086.23	CBS
Other assets		<u>3,553,939.67</u>	CBS
Total assets	\$	<u><u>4,008,364.06</u></u>	

Liabilities and capital

Accounts payable	\$	5,300.00	CBS
Deferred income taxes		71,318.53	CBS
Taxes accrued		<u>(17,149.03)</u>	CBS
Total liabilities		<u>59,469.50</u>	
Common stock		3,968,416.02	CBS
Retained earnings		<u>(19,521.46)</u>	CBS
Total stockholder's equity		<u>3,948,894.56</u>	
Total liab. & capitalization	\$	<u><u>4,008,364.06</u></u>	

HEI LEASING, INC.
INCOME STATEMENT
For the ten months ended October 31, 2003

EXPENSES	
Administrative and general expense	\$ 4,728.86 CIS
Interest on debt-HEI	<u>8.33 CIS</u>
NET INCOME (LOSS)	<u>\$ (4,737.19)</u>

Note: HEI Leasing, Inc. was dissolved in October 2003. Thus, no balance sheet as of December 31, 2003 has been provided.

PACIFIC ENERGY CONSERVATION SERVICES, INC.
INCOME STATEMENT
For the year ended December 31, 2003

REVENUES	\$ 207,672.65	CIS
EXPENSES		
Administrative and general expense	260,451.37	
Depreciation and amortization expense	(291.78)	
Taxes Other Than Income Taxes	21,983.72	
	<u>282,143.31</u>	CIS
NET INCOME (LOSS)	<u>\$ (74,470.66)</u>	

PACIFIC ENERGY CONSERVATION SERVICES, INC.
BALANCE SHEET
December 31, 2003

Assets

Cash	\$	42,397.29	CBS
Notes receivable		2,810.09	CBS
Accounts receivable		7,233.97	CBS
Other assets		<u>11,051.00</u>	CBS
Total assets	\$	<u><u>63,492.35</u></u>	

Liabilities and capital

Accounts payable	\$	14,951.00	CBS
Taxes accrued		<u>17,269.34</u>	CBS
Total liabilities		<u>32,220.34</u>	
Common stock		640,000.00	CBS
Retained earnings (deficit)		<u>(608,727.99)</u>	CBS
Total stockholder's equity		<u>31,272.01</u>	
Total liab. & capitalization	\$	<u><u>63,492.35</u></u>	

HEI DISTRICT COOLING, INC.
INCOME STATEMENT
For the ten months ended October 31, 2003

REVENUES	\$ 123.25	CIS
EXPENSES		
Administrative and general expense	257.04	CIS
Income taxes	<u>203.00</u>	CIS
NET INCOME (LOSS)	<u>\$ (336.79)</u>	

Note: HEI District Cooling, Inc. was dissolved in October 2003. Thus, no balance sheet as of December 31, 2003 has been provided.

PROVISION TECHNOLOGIES, INC.
INCOME STATEMENT
For the period ended July 14, 2003

REVENUE	\$ 438,637.04	CIS
EXPENSES		
Administrative and general expense	500,913.37	
Depreciation and amortization expense	8,050.79	
Taxes Other Than Income Taxes	23,482.69	
	<u>532,446.85</u>	CIS
Operating income (loss)	(93,809.81)	

Income taxes

(60,050.00) CIS

HYCAP MANAGEMENT, INC.
INCOME STATEMENT
For the year ended December 31, 2000

HYCAP MANAGEMENT, INC.
BALANCE SHEET
December 31, 2003

Assets		
Cash	\$ 497,327.00	CBS
Accounts receivable	24,692.19	CBS
Investment in HBS Preferred Funding, LP	<u>18,193,000.00</u>	CBS
Total assets	<u>\$ 18,715,019.19</u>	
Liabilities and capital		
Accounts payable	\$ 1,692.57	CBS
Taxes accrued	<u>(2,019.00)</u>	CBS
Total liabilities	<u>(326.43)</u>	
Common stock	18,364,273.96	CBS
Retained earnings (deficit)	<u>351,071.66</u>	CBS
Total stockholder's equity	<u>18,715,345.62</u>	
Total liab. & capitalization	<u>\$ 18,715,019.19</u>	

Hawaiian Electric Industries Capital Trust I and subsidiary

Consolidating Schedule - Income Information

Year ended December 31, 2003

(in thousands)

	Hawaiian Electric Industries Trust I	HEI Preferred Funding, LP	Reclassifi- cations and Eliminations Dr. (Cr.)	Consolidated	
Revenues					
Interest income	\$ -	\$ 10,051	\$ -	\$ 10,051	CIS
Equity in net income of subsidiaries	8,619	-	8,619	-	
	8,619	10,051	8,619	10,051	
Expenses					
Other	-	-	-	-	CIS
	-	-	-	-	
Operating income					
Other	8,619	10,051	8,619	10,051	
Minority interest in net income of subsidiary	-	-	1,432	1,432	CIS
Earnings before distribution on preferred securities	8,619	10,051	10,051	8,619	
Distribution on preferred securities	8,360	-	-	8,360	CIS
Earnings available for common securities	\$ 259	\$ 10,051	\$ 10,051	\$ 259	

Hawaiian Electric Industries Capital Trust I and subsidiary
Consolidating Schedule - Balance Sheet Information
December 31, 2003
(in thousands)

Assets	Hawaiian Electric Industries Trust I	HEI Preferred Funding, LP	Reclassifi- cations and Eliminations Dr. (Cr.)	Consolidated	
Cash and equivalents	\$ -	\$ 22	\$ -	\$ 22	CBS
Accounts receivable	-	6	-	6	CBS
Notes receivable	-	120,073	-	120,073	CBS
Other	-	1,210	-	1,210	CBS
Investment in subsidiary	103,093	-	(103,093)	-	
	<u>\$ 103,093</u>	<u>\$ 121,311</u>	<u>\$ (103,093)</u>	<u>\$ 121,311</u>	
Liabilities and stockholders' equity					
Accounts payable	\$ -	\$ 25	\$ -	\$ 25	CBS
	-	25	-	25	
HEI-obligated trust preferred securities	100,000	-	-	100,000	CBS
Minority interests	-	-	(18,193)	18,193	CBS
Stockholders' equity					
Common stock	3,093	121,286	121,286	3,093	CBS
Retained earnings (deficit)	-	-	-	-	
	<u>\$ 3,093</u>	<u>121,286</u>	<u>121,286</u>	<u>3,093</u>	
	<u>\$ 103,093</u>	<u>\$ 121,311</u>	<u>\$ 103,093</u>	<u>\$ 121,311</u>	

THE OLD OAHU TUG SERVICE, INC.
INCOME STATEMENT
For the year ended December 31, 2003

REVENUES	\$ 30,598.32	CIS
EXPENSES	<u>105,934.62</u>	CIS
Operating income (loss)	(75,336.30)	
Income taxes	<u>(5,855.00)</u>	CIS
NET INCOME (LOSS)	<u>\$ (69,481.30)</u>	

THE OLD OAHU TUG SERVICE, INC.
BALANCE SHEET
December 31, 2003

Assets

Notes receivable-HEI \$ 3,026,361.27 CBS

Accounts receivable 3,732.89 CBS

Total assets \$ 3,030,094.16

Liabilities and capital

Accounts payable \$ 3,430.24 CBS

Deferred income taxes (158,198.11) CBS

Other liabilities 1,207,481.62 CBS

Total liabilities 1,052,713.75

Common stock 2,442,388.65 CBS

Retained earnings (deficit) (454,189.24) CBS

Accumulated other comprehensive loss (10,819.00) CBS

Total stockholder's equity 1,977,380.41

Total liab. & capitalization \$ 3,030,094.16

HEI
INTERCOMPANY TRANSACTIONS-BALANCE SHEET
12/31/2003

	HEI 12/20	HECO	HELCO	MECO	HEIII	HEIDI	ASB	HYCAP	LP	HEIPC	HEIPI	TOOTS
Accounts Receivable												
HEI 12/20	7,728.49	415,193.51	45,500.00		1,039,153.20		182,112.28					
HECO	778,959.71											
HELCO	780,672.43											
	65,000.00											
HELCO	87,876.34	14,592.86										7,231.80
	65,000.00											
MECO	67,245.78	830,882.49										
Renewable Hawaii	2,424.34	9,021.82										
HEIII	13,572.40	492.01										
		455.05										
HEIDI	596,692.91	(8,547.20)										
ASB	13,578.00	3,287.37										
HEIPC	3,593.00	4,800.00										
PECS	1,000.00	2,300.00										
HEIPI	5,000.00	300.00										
TOOTS	470.42	484.84										
MPC		(942.79)										
HYCAP	484.40											
LP								24,692.19	1,692.57			
Total	3,273,155.85											
Notes Receivable												
LP												
HEI												
HECO	6,000,000.00				9,742,770.58	1,319,765.73			103,000,000.00	2,810.09	279,228.10	3,026,361.27
HEIII												
HEIDI												
ASB												
HEIPC	305,462.50											
PECS												
HEIPI												
TOOTS												
MPC												
HYCAP												
LP												
Total	6,305,462.50											
Dividends Receivable												
HECO	24,859.59											
ASB												
TRUST												
HYCAP	0.03											
Total	24,859.62											
Total	140,444,035.77											

Note: Intercompany amounts between HECO, MECO and HELCO are ignored since the elimination occurs at HECO. Also, intercompany receivable/payable with discontinued operations (HEIPC and MPC) are ignored as balances are reclassified to net assets from discontinued operations (Other Assets).

HEI
INTERCOMPANY TRANSACTIONS-BALANCE SHEET
12/31/2003

Accounts Payable

HEI	HECO	HELCO	MECO	RHI	HEIII	HEIDI	ASB	HYCAP	LP	HEIPC	PECS	HEIPI	TOOTS
HEI	(137,595.85) *												
	(641,363.86)	(65,000.00)	(65,000.00)	(2,424.34)	(13,572.40)	(596,692.91)	(13,578.00)				(1,000.00)	(5,000.00)	
HECO		B	B	B			(3,287.37)						
HELCO	(422,922.00)	(44,443.64)	(673,782.40)	(9,024.82)	(492.01)	(455.05)	(6,066.00)				(2,300.00)	(300.00)	
MECO	(45,500.00)												
HEIII	(1,039,153.20)												
HEIDI	(182,112.28)												
ASB													
HEIPC													
PECS													
HEIPI													
TOOTS													
MPC													
HYCAP													
LP									(24,692.19)				
Total	(3,273,155.85)							(1,692.57)					

Notes Payable

LP	(103,000,000.00)												
HEI													
HECO	(6,000,000.00)												
HEIII													
HEIDI	(9,742,770.58)								(17,073,100.00)				
ASB	(1,319,765.73)												
HEIPC													
PECS													
HEIPI	(2,800,000.00)												
TOOTS	(1,361.27)												
MPC													
Total	(140,444,935.77)												
Long-term	(120,073,100.00)												
Short-term	(20,370,935.77)												

Shin-etsu Tsuchiyama, HECO accountant, the \$137,595.85 HEI payable was approved for payment on 12/31/03 and recorded as Accounts Payable and not Other AP & Accruals. As such, for consolidation purposes, it is not necessary to reclass the \$137,595.85 since the amount is included in HECO's Accounts Payable.
ΣB = \$771,363.86 HECO BS - Represents intercompany payable on HECO's general ledger in "Other AP and accruals." For financial reporting consolidation purposes, amount is reclassified to Accounts Payable and eliminated. RHI of \$2,424.34 was not reclassified - immaterial, pass.

HEI
INTERCOMPANY TRANSACTIONS-BALANCE SHEET
12/31/2003

	HEI	HECO	HELCO	MECO	HEIII	HEIDI	ASB	HEIPC	PECS	HEIPI	TOOTS	MPC
Interest Receivable												
HEI												
HECO	246.27				7,509.09	2,440.45					256.23	2,334.89
HEIII												
HEIDI												
ASB												
HEIPC	444.68					47,038.02						
PECS												
HEIPI												
TOOTS												
MPC												
Total	12,789.10											
Interest Payable												
LP	(0.02)											
HEI		(246.27)										
HECO												
HEIII	(7,509.09)											
HEIDI	(2,440.45)											
ASB												
HEIPC												
PECS	(2.17)											
HEIPI	(256.23)											
TOOTS	(2,334.89)											
Total	(12,789.10)											
Accounts Receivable												
Interest Receivable												
Dividends Receivable												
Total	73,155.85	24,859.59	12,789.10									
	3,310,804.54											

CBS

CA-IR-8

Please provide a complete and detailed description of the HEI/HECO budget process and cycle, indicating the time line for each individually significant budget activity/step throughout a typical year and identifying the documents produced at each step of such process/cycle. Provide specimen copies of each type of document routinely created within the most recently completed budget cycle, including but not limited to budget assumption statements, calendars, input forms, staffing documentation, presentation graphics and budget review/approval documentation.

HECO Response:

HECO's capital and operating budgets are prepared annually with input from all departments about the costs of their planned activities for the budget period. Budget preparation begins around the second quarter of the year and involves preparation or refinements of projections for the next year for non-project/non-program work and five years for project/program work. In the event that there is an anticipated rate case, projections for two-years are required for non-project/non-program work.

The estimates are created in two types of files: 1) project/program files and 2) non-project/non-program files (Responsibility Area "RA" files). When budgeting for a project/program, all costs for a project/program are included in the project/program file, without regard to the RA performing the work. When budgeting for non-project/non-program work, costs for only the RA are included in the non-project/non-program file.

Preparation is generally delegated to department administrators and project managers, and generally includes the following steps:

- Considering the work to be accomplished and activities to be performed;
- Estimating the hours and dollars required for each activity;
- Projecting company staffing available each month; and
- Reviewing available staffing against the demand, considering overtime, contract services, temporary hires, and regular hires.

The approval process generally requires the following steps:

- The budget is reviewed and approved by the department managers;
- The budget is approved by the respective (senior)vice presidents; and
- The president convenes the officers to review the capital and operating budget and to decide the level of capital and operation and maintenance expenditures.

The calendar for the initial development of the 2005 budget, which identifies the time line for the significant budget activities/steps throughout a typical year, can be found on pages

7 through 8. The 2005 budget was then reviewed and revised in early 2004. See pages 33 through 35 for these instructions and corresponding timeline.

Specimen copies of documents produced at each step of the budget process/cycle are as follows:

- Input forms for the labor and non-labor budget are available to users on the HECO

Intranet:

Labor Input Sheet - NonProject
2005

Resp Area (RA) _____
Labor Class _____

Prepared by _____
Date _____

[illegible]

Holidays - 2/21, 3/25, 5/30, 6/10, 7/4, 8/19, 9/5, 10/10, 11/11, 11/24, 12/23 (1/2), 12/26, 12/30 (1/2)

Available hours per employee

0	8	8	0	8	8	8	8	8	8	16	16	96
168	160	184	168	176	176	168	184	176	168	176	176	2080

NOTE: Total NonProject Demand hours may NOT equal Total Supply hours due to Project Demand hours (which are indicated in the Demand list)

NonLabor Input Sheet - NonProject
2005

Resp Area (RA) _____

Prepared by _____
Date _____

[illegible]

- Staffing forms required from each department:

(DEPT)

SUMMARY OF EMPLOYEE CHANGES														
Net Changes by Month														
2005	BEG YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YR END
BU:														
BEG YR														0
NEW HIRE														0
TERM														0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MERIT:														
BEG YR														0
NEW HIRE														0
TERM														0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* Total includes the following number of temporary/part-time employees:														
	0	0	0	0	0	0	0	0	0	0	0	0	0	0

EXPLANATION OF EMPLOYEE CHANGES				
2005	NUMBER OF EMP			
	TERM/ REPL	INC	(DEC)	HECO TEMP MONTH
	0	0	0	0

INTEROFFICE CORRESPONDENCE



Hawaiian Electric Co., Inc.

July 30, 2003

To: Officers
Direct Reports to Officers

Subject: Instructions for Refining the 2004-2008 Project/Program Estimates and Preparing the
2004-2005 Non-Project/Non-Program Estimates

Transmitted herewith is information regarding the preparation of HECO's capital and operating budgets.

<u>Attachment:</u>	<u>Description:</u>
A	Budget Preparation Schedule
B	Budgeting Responsibilities Unique to an Organization
C	Reference Materials

This year's Budget Preparation Schedule can be found on Attachment A. Workshops will be held to help users in developing their budgets and answering questions regarding the codeblock. Workshops will be held in Classroom B on Wednesday August 6th and Tuesday August 12th, from 8:00am to noon. See page three of attachment A for additional information, including class size limitation. Information regarding the Officer's Briefing Sessions, which are scheduled for September 17th and 19th, and October 1st, 8th and 15th and required forms will be forthcoming. Please note that select organizations may be asked to present their budget to the officers on September 17th and/or 19th.

Please refer to attachment B for any specific budget responsibilities unique to your organization. Please see your vice president for guidelines for developing your 2004 and 2005 detailed budget. In preparation for the upcoming rate case, we are requiring detailed estimates for both 2004 and 2005. Estimates for both years should be prepared as accurately as possible, and in general be given as much attention as would the estimates used for a rate case proceeding. Please retain all detailed information supporting your 2004 and 2005 estimates as you may be asked at a later date to provide them.

As a reminder, we have placed the Budget Preparation Instructions, which include general guidelines, cost distribution reminders, capital project information and instructions for developing inter-company billing (ICB) estimates, on the HECO Intranet under Management Accounting. See Attachment C, Reference Materials, for additional information.

Please distribute this memo and attachments as appropriate. Please contact Wendy Yamamoto (extension 7729 or e-mail) if there are any questions regarding the requirements or guidelines, or if anyone needs help in developing their estimates.


Richard von Gnechten
Financial Vice President

Attachments
cc: Paul Fujioka
Lyle Matsunaga

Attachment A

BUDGET PREPARATION SCHEDULE

Preparation:

- Aug 4 Estimates for Information Technology and Services (ITS):
ITS (Rick Stuller) issues memo regarding IT items departments need to forecast.
- Aug 6 & 12 Workshops available to help users prepare and input budget into Pillar (see page 3 for additional
8am-Noon information.)

Intercompany Billing (ICB) Schedule:

- Jul 31 – Aug 7 Provider of service develops estimate and inputs required information for ICBs in Pillar files. ICB reports, "ICB Direct Labor Cost", "ICB Direct Total Cost", and "ICB Labor Hours" are included in the Expenses Module of your Pillar files. Note that the "ICB Direct Labor Cost" and "ICB Direct Total Cost" reports do not include on-costs.
- No later than Aug 7 Provider of service places appropriate Pillar file(s) in appropriate folder on the O:drive.
- Aug 12 HECO Pillar Administrator consolidates files, provides HELCO/MECO Pillar Administrator with file containing ICB estimates and information, and provides non-utility contact persons with reports containing ICB estimates and information.
- Aug 14 HELCO/MECO Pillar Administrator distributes ICB estimates and information to respective departments for review and approval.
- Aug 15 – 26 Receiver of services approves ICB estimates on ICB report and sends a signed copy of the report to provider. For Utility Companies, also send a copy of the report to your Pillar Administrator. Revisions, if any, must be reflected in the Pillar files of the provider and receiver of services

Detail Budgeting - 2004-2008 Project and Program, and 2004-2005 Non-Project/Non-Program Estimates:

- July 31 Pillar file distribution:
- Pillar Administrator distributes Project and Non-Project files to Department folders
 - Consolidators, if applicable, distribute Project and Non-Project files to persons responsible for preparing budget
- Aug 7 Complete inter-company billing estimate:
- Users complete inter-company billing estimates
 - Users place copy of completed Project and Non-Project files in the appropriate folder on the O: drive by 12 noon
- Complete 2004-2005 labor estimates for INITIAL resource leveling:
- Users complete 2004-2005 labor estimates in Project (for project and program demand) and

Attachment A

Detail Budgeting - 2004-2008 Project and Program, and 2004-2005 Non-Project/Non-Program Estimates
(cont'd):

- Aug 14 Complete revisions to 2004-2005 labor estimates for REVISED resource leveling:
- Users complete revisions to 2004-2005 labor estimates in Project (for project and program demand) and Non-Project (for non-project/non-program demand and RA supply) files
 - Users place copy of completed Project and Non-Project files in the appropriate folder on the O: drive by 12 noon
- Pillar Administrator distributes revised Resource Leveling Reports for review, analysis, and to aid in balancing RA resource supply and demand.
- Aug 18 Pillar Administrator distributes ViewBud RA file, which shows total Capital and O&M (including on-costs) for comparison purposes

nn. Complete Project and Program budget & update.

Attachment A

WORKSHOP SCHEDULE

Workshops have been created to help users develop their budgets and input estimates in Pillar and answer questions regarding the Code Block (RA, activity, location, indicator, project number, expense element combination). Your attendance at the Workshops is optional, and note that no formal presentations will be made. Please bring materials that will help you in developing your estimates. If you have Pillar questions, please make sure to place a copy of your Pillar file on your department shared drive so that the files may be accessed in Classroom B.

The Workshops will be held on the following days at Classroom B from 8am to 12 noon:

Wednesday, August 6

Tuesday, August 12

Reservations will be taken on a first-come, first-served basis. Note that only ten PCs are available so only ten individuals will be able to input their budget into Pillar at a time. To reserve a space, please e-mail Wendy Yamamoto with the attendee(s) name, RA code, phone number, and first and second choice of date.

Attachment B

- Not applicable - no specific corporate budget responsibilities assigned to Organization

Attachment B

J. BEAVERS

<u>Date Due</u>	<u>Description</u>
08/20/03	Forward to Denise Hoke an estimate of cash payments and receipts by month for 2004 and 2005, covering the following items: <ul style="list-style-type: none">• Rent payments for property leased by HECO (non T&D)• Rental income from HECO property• Proceeds from sale of land• Other receipts/payments
08/26/03	Include the following in your organizational budget, if applicable: <ul style="list-style-type: none">• Ward Avenue Cafeteria subsidy (<i>activity 935; indicator NE</i>)• Expenses related to Mahakea (<i>activities 926, 931 & 932; location MAH; indicator NN</i>)• Ward Avenue Parking Revenue (<i>activity 025; location OUT, indicator BO; expense element 905</i>)• Bus subsidy (<i>activity 780</i>)

Attachment B

A. EJERCITO

<u>Date Due</u>	<u>Description</u>
08/20/03	Forward to Denise Hoke an estimate of cash receipts by month for 2004 and 2005 for the following: <ul style="list-style-type: none">• Service establishment fees• Field collection fees• Returned check charges• Late payment and bad debt rates (annual)• Revenue protection revenues
08/20/03	Forward to Denise Hoke an estimate for 2004 and 2005 for the following: <ul style="list-style-type: none">• Interest on Customer Deposits
08/26/03	Include the following in your organizational budget, if applicable: <ul style="list-style-type: none">• Bad debt expense - please coordinate with Cynthia Takahashi• Low Income Matching expenses (activity 617)• Payment protection insurance

Attachment B

A. FUJINAKA

Date Due

Description

Should be
completed

Forward to T. Simmons with a copy to Management Accounting, the 2004-2008 Generating Unit Maintenance Schedule so that it may be used in developing the fuel, purchased power and O&M estimates for 2004-2008.

08/26/03

Include the following in your organizational budget, if applicable:

- Revenue from Demineralized water sales (*activity 030; indicator BO; expense element 905*)
- General excise taxes related to Demineralized water sales (*activity 040; indicator BE; expense element 501*)

Attachment B

G. HASHIRO

Date Due

Description

08/26/03

Your organizational budget should include, if applicable:

- Amortization of deferred IRP General Planning costs (Please coordinate with Ernest Shiraki) (*activity 712; expense element 901*)

Attachment B

H. KAGEURA

Date Due

Description

08/26/03

Include the following in your organizational budget, if applicable:

- Below the line Vegetation Management Services Revenues (*activity 015; location OUT; indicator BN; expense element 905*)
- Below the line Vegetation Management Services Expenses (*activity 494; location OUT; indicator BN*)
- Joint pole credits (*expense element 905*)

Attachment B

S. Li (Legal and Land & Rights of Way)

Date Due

Description

08/20/03

Forward to Denise Hoke an estimate of cash payments and receipts by month for 2004 and 2005 covering the following items:

Attachment B

S. LOO

Date Due

Description

08/26/03

Your organizational budget should include estimates of revenues generated by month for 2004 and 2005 from work performed for outside parties, if applicable.

Include the following in your organizational budget, if applicable:

- Emission Fees (*activity 875*)
- Revenue from Contract Services - "below the line" (*activity 010; indicator BN; expense element 905*).
- General excise taxes related to "below the line" revenues (*activity 040; indicator BN; expense element 501*)

Attachment B

J. MULLIS

Date Due

Description

08/26/03

Your organizational budget should include, if applicable:

- Sales of stores material to building contractors (*activity 030; location OUT; indicator BO; expense element 905 [revenue] & activity 030; indicator BE; location OUT; expense element 201 [expense]*)
- Transformer Rental Revenue (*activity 025; indicator BO; expense element 905*)
- Take home pool car program revenues (*activity 025; indicator BO; expense element 905*)
- Revenues generated from work performed for outside parties (*activity 030; indicator BO; expense element 905*)
- Revenues generated from work performed for outside parties - "below the line" (*activity 010; indicator BN; expense element 905*)
- General excise taxes related to "below the line" revenues (*activity 040; indicator BN; expense element 501*)

Attachment B

B. MUNGER

Date Due
07/30/03

Description

Forward to Alan Hee the Production Simulation Run results for 2004-2008

08/20/03

Receive from Ernest Shiraki, the amount of the Waiau Well Water project cost to amortize in 2004 and 2005.

08/26/03

Your organizational budget should include, if applicable:

- Amortization of Waiau Well Water project costs (Please coordinate with Ernest Shiraki) (*activity 121; expense element 901*)
- Amortization of Kahe 7 project costs (*expense element 901*)

Attachment B

J. PRICE

Date Due

Description

08/26/03

Forward to Denise Hoke an estimate for 2004 and 2005 for the following:

- Salary-reduction amount and FICA savings due to Flex Plan
- Electric discount for retirees
- Incentive Compensation Program estimates
- Workers' Compensation Total Cost estimate for 2004 and 2005
- Executive Life Insurance (do not include in your department Pillar estimate)

Attachment B

A. SEKI

Date Due

Description

08/20/03

Forward to Denise Hoke the calculation of EPRI dues for 2004 and 2005.

08/26/03

Your organizational budget should include, if applicable:

- EPRI contributions other than local R&D budget (coordinate with Management Accounting) (*activity 730*)
- Local R&D costs (coordinate with Management Accounting) (*activity 731*)

Attachment B

S. SEU

<u>Date Due</u>	<u>Description</u>
08/26/03	Include the following in your organizational budget, if applicable: <ul style="list-style-type: none">• Cable TV revenues (activity 025; location OOP, indicator BO; expense element 905)

Attachment B

E. SHIRAKI

Date Due

Description

08/14/03

Receive from Rick Stuller the estimated completion date and total cost
of each phase of the AM/FM projects expected to be placed into

08/20/03

Forward to Brenner Munger the estimated amortization of the Waiau
Well Water project costs and Kahe 7 for 2004 and 2005.

Forward to Rick Stuller, with a copy to Denise Hoke, the estimated
amortization of AM/FM development costs.

Forward to Denise Hoke:

- Estimated amortization of gain on sale of utility property if applicable
for 2004-2008
- Estimated tax rates for 2004-2005
- Amortization of regulatory assets
- Amortization of deferred IRP costs
- Interest on deferred IRP costs
- Interest on DSM costs
- Amortization of investment income differential
- Waiau Water Wells project - accrual of monthly carrying charge
- Amortization of e-Business costs
- Amortization of other deferred costs (other than e-Business, such
as rate case costs)
- Interest on Barbours' Point Unit #1 (Kahe 7) being amortized

Attachment B

T. SIMMONS

Date Due

Description

08/11/03

Forward to Alan Hee **monthly** budgets of the following for 2004 and 2005:

- Purchased power expenses by supplier separating payments for capacity, non-fuel, etc.
- KWH purchases by supplier

Forward to Denise Hoke and Alan Hee **monthly** budgets of the following for 2004 and 2005:

- Kalaeloa shortfall costs based upon the May 2003 sales budget update
- AES bonus payments based upon the May 2003 sales budget update
- Fuel inventory, based on the fuel oil consumption estimate, including barrels of fuel oil inventory at the end of each month, by plant site and by type of oil
- Fuel consumption budgets

08/11/03

Forward to Alan Hee **annual** budgets of the following for 2006-2008:

- Purchased power expenses by supplier separating payments for capacity, non-fuel, etc.
- KWH purchases by supplier

Forward to Denise Hoke and Alan Hee **annual** budgets of the following for 2006-2008:

- Kalaeloa shortfall costs based upon the May 2003 sales budget update
- AES bonus payments based upon the May 2003 sales budget update
- Fuel inventory, based on the fuel oil consumption estimate, including barrels of fuel oil inventory at the end of each month, by plant site and by type of oil
- Fuel consumption budgets

Attachment B

T. SIMMONS (continued)

<u>Date Due</u>	<u>Description</u>
08/19/03	<p>Forward to Denise Hoke an estimate of cash payments and receipts by month for 2004 and 2005 covering the following:</p> <ul style="list-style-type: none">• Fuel oil purchases• Throughput charges• Fuel handling charges• Budget of rental income from the use of Barber's Point fuel tanks for storage by Tesoro or other parties• Pipeline facilities and maintenance charges• Payments to Chevron USA for operation and maintenance of the Barber's Point fuel storage facility• Costs of testing and inspection relative to the purchase of fuel oil• Projected payments for purchase of line materials, both for inventory and for special order items
08/26/03	<p>Include the following in your organizational budget, if applicable:</p> <ul style="list-style-type: none">• Purchase power contract legal expenses

Attachment B

R. STULLER

<u>Date Due</u>	<u>Description</u>
08/04/03	ITS issues memo regarding IT items departments need to forecast.
08/14/03	Forward to Ernest Shiraki, the expected completion date and the associated cost of each phase of the AM/FM project expected to be placed into service during 2003, 2004, and 2005. For the AM/FM project, include the percentages which should be used to allocate the costs to the various functional accounts.
08/20/03	Receive from Ernest Shiraki, the amount of AM/FM system development costs to amortize for 2004 and 2005.
08/26/03	Forward to each RA for HECO, revised estimate of ITS charges. (Forward a summary of estimated ITS services by RA to Management Accounting.) Forward to Denise Hoke, two copies of ITS charges by RA for HELCO, MECO, and all affiliated companies using ITS services.
08/26/03	Your organizational budget should include, if applicable: <ul style="list-style-type: none">• Revenues (<i>activity 010; indicator BN; expense element 905</i>) and expenses (<i>activity 916 or 917; indicator BN</i>) related to the Interisland Communication System (ICS)• Other telecommunication related revenues (<i>expense element 905</i>) & expenses (<i>activity charged may vary</i>)

Attachment B

D. WALLER

Date Due

Description

08/26/03

Your organizational budget should include, if applicable:

- Revenues (*activity 015; indicator BN; expense element 905*) and expenses (*activity 140; indicator BN*) for work performed for outside

Attachment C

REFERENCE MATERIALS

The following reference materials are available on the HECO Intranet under Management Accounting:

Document	Information Included
Planning & Budgeting:	
2004-2005 Budget Preparation Instructions	Guidelines, cost distribution reminders, capital project information, other items, instructions for developing inter-company billing estimates.
Code Block Reference Manual:	
Code Block: Changes from Previous Release Responsibility Areas Activities Locations Indicators Projects (Non-Controlled Default) Expense Elements	Codes, descriptions, and instructions on use.
Code Block Business Rules and Frequently Asked Questions	General rules covering Freight, Bulk Postage and Mail; Clearing Accounts, research and development, etc.
Std Labor Class & On-Costs:	
Labor Classes	Labor Classes & Related Job Titles/Position Descriptions (Merit and Bargaining Unit). Please note that merit and bargaining unit are on separate tabs.
On-Cost and Vehicle Rates	Listing of On-Cost Rates and Vehicle Rates
Vehicle Classes	Vehicle Class Descriptions
Policies & Procedures:	
Pillar User Manual	Instructions on Using Pillar
Validating Code Block Combinations	Instructions on using the VB Application to validate the code block combinations entered in Pillar
Vehicle Costing Procedures	December 1, 2001 IOC from Ernest Shiraki

The following forms are available on the HECO Intranet under Management Accounting:

Document
Cash CIAC Form
Budget Input Forms (Non-Project / Non-Program)

Guidelines

Include in the appropriate Pillar file (project or non-project) the company-wide costs for which your organization is responsible to budget and manage throughout the year.

Monthly estimates are required for 2004-2005 for responsibility area (RA) non-project/non-program costs and for 2004-2008 for project and program costs.

Wage Rate Increase Assumptions - General wage rate increase assumptions are embedded in the standard labor rates for each labor class in the Pillar files. Therefore, do not include any wage increases in your estimates.

General Inflation Adjustment - Non-labor estimates should be based on information available for your specific cost items. For preparing estimates for non-labor items where you *do not* have specific prices or cost indices, a general inflation factor "*Escalation (2003 base)*" is included as an option in the Pillar files.

Inter-Company Billing (ICB) Estimates - The ICB process is designed to take advantage of technology and generally eliminate paper shuffling. The provider of service (HECO RAs) will use Pillar to develop the ICB estimates as well as to capture the information required for the ICB Approval Form. See "Instructions for Developing Inter-Company Billing Estimates" below for additional information.

Rate Case – In preparation for the upcoming rate case we are requiring detailed estimates for both 2004 and 2005. Estimates for both years should be prepared as accurately as possible, and in general be given as much attention as would the estimates used for a rate case proceeding. Please retain all detailed information supporting your 2004 and 2005 estimates as you may be asked at a later date to provide them.

Resource Leveling – Resource leveling reports (comparing labor hours supply and demand) for 2004 and 2005 will be available at three different times during the budgeting cycle. Labor supply hours will be based on the number of employees for each labor class in a RA multiplied by 2,096 and 2080 hours for 2004 and 2005, respectively. **As such, employee count by labor class needs to be input into the Non-Project files for each organization.** Labor demand hours will be based on all labor hours budgeted for all labor classes in a RA and should be input in the Project and/or Non-Project files.

To facilitate the resource leveling effort, please input the following information into the Pillar files:

Cost Distribution Reminders

On-costs - Labor on-costs, except for payroll taxes, are based on the number of productive labor hours multiplied by an hourly rate. Payroll tax on-costs are based on a percentage of the productive labor dollars. Stores on-costs will be based on a percentage of the value of materials issued from the warehouse and goods purchased. Vehicle cost is based on the number of vehicle hours multiplied by an hourly rate. As such, hours of vehicle usage will need to be input into the Pillar files. See "Vehicle Charges" below for additional information on vehicle costs.

Listings of the on-cost and vehicle rates, and the labor on-costs applicable to each labor class are available on the HECO Intranet under Management Accounting.

Stores Loading - In addition to the cost of the warehouse operations, stores on-cost includes the costs for all freight and postage *except for* postage for customer bills for HECO, HELCO, and MECO, freight and postage for associated companies, and freight charges of more than \$15,000 per invoice. Additional information regarding stores on-costs are available on the HECO Intranet under Management Accounting.

Freight Charges - Freight charges less than or equal to \$15,000 per invoice will be budgeted by the Purchasing division and will be charged to the stores clearing account using activity "842", indicator "NC", and expense element "640". Freight charges of more than \$15,000 per invoice should be budgeted by the person responsible for the work using expense element "640", and the appropriate project, program, activity, etc., and appropriate indicator.

Vehicle Charges - Effective January 1, 2001, a change in vehicle costing procedures was implemented. Please refer to the IOC from Ernest Shiraki on December 1, 2000, available on the intranet under General Accounting\Policies and Procedures\Vehicle Costing Procedures. For assigned vehicles, please charge 8 hours per day to the appropriate codeblock(s). You should continue to budget anticipated pool vehicle hours to the appropriate codeblock, program or project. To facilitate the budgeting effort, vehicle class descriptions are available on the HECO Intranet under Management Accounting.

Cut Offs for Direct Charging - For non-billable costs, labor and non-labor cutoffs have been

Labor Costing - Under standard labor costing, the distribution of labor costs for exempt merit employees will not be limited to 40 hours per week. Costs will be distributed to all hours worked, including productive and non-productive (including vacation, holiday and sick) hours. For exempt merit employees, budget the total estimated hours to be distributed, including any hours in excess of 2,096 and 2,080 hours in 2004 and 2005, respectively.

For non-exempt merit and hourly employees, labor costs will be based on using a composite rate reflecting such things as straight-time, differential and overtime labor rates. As such, for non-exempt merit and hourly employees, budget the total number of hours for which compensation will be received. For additional information on labor costing, please refer to the August 1, 1997 IOC regarding "Project APPRISE - Standard Labor Costing" available on the intranet under General Accounting\Standard Labor Class and On-Costs\Standard Labor Costing. Listings of the labor classes are available on the HECO Intranet under Management Accounting.

Non-Productive Wages - All non-productive wages (vacation, holiday, sick, etc.) should be budgeted using activity "098", indicator "ND", location "PHE", and expense element "107"; except for industrial injuries, which should be budgeted using activity "098", indicator "ND", location "PHE", and expense element "108". Note that there are 120 and 96 hours of holiday time for each employee in 2004 and 2005, respectively.

Workers' Compensation Costs - The Disability Management Division will budget for the non-labor workers' compensation costs. The labor portion of workers' compensation costs, however, should continue to be budgeted by the employees' RA using activity "098", indicator "ND", and expense element "108".

Preliminary engineering - Preliminary engineering charges will be included in the clearing account and should continue to be input in the non-project file and coded with indicator "NP" and location "OAH" for Energy Delivery or location "PHE" for Power Supply.

Capital Project Information

Cash Contributions In Aid of Construction (CIAC) information will not be included in the project estimates in the Pillar Project files. Cash CIAC associated with capital projects for 2004-2008 should be captured on the "Cash CIAC Forecast" form that can be found on the HECO Intranet under Management Accounting. See Attachment D, Reference Materials, for additional information. Please send a completed Cash CIAC Forecast form, if applicable to your capital projects, electronically to Joanne Takamura by August 26, 2003.

In-kind CIAC - Where applicable, include in-kind CIAC estimates in the Pillar Project files using the appropriate RA, activity, location, indicator "NI", project number, and expense element "910".

As a reminder, **AFUDC** will generally be applied on capital programs. For these capital programs, do not enter an "**AFUDC_Duration" line item in the Pillar Project files. Pillar will automatically calculate AFUDC based on an average expenditure level.

Other Items

Reports - Refer to the standard view reports located in the Expenses Module of your Pillar files.

The **Visual Basic (VB)** application that checks for valid code block combinations (RA, activity, location, indicator, project, expense element) should be executed throughout the development of your estimates, and **before** you place the Pillar file with your completed budget in the appropriate folder on the O: drive.

Please contact Wendy Yamamoto at extension 7729 if there are any questions regarding the requirements, or if anyone needs help in developing their estimates.

Instructions for Developing Inter-Company Billing (ICB) Estimates

The provider of service (HECO) will use Pillar to develop the ICB estimates as well as to capture the information required for the ICB Approval Form. As such, the following information **is required** in the Pillar files of the provider of service:

The **Line Item Field** must contain the ***Associated Company RA*** and ***Associated Company Project Number*** (if applicable). Please contact the receiver of services at the associated company for the required information as this will also serve to confirm that the services are required.

It is important to list the Associated Company RA first, followed by a space, and the Associated Company Project Number. You may include any other information after the Associated Company Project Number. **For example, input in the Line Item Field: *HWA CNAGAT01*, where "*HWA*" = Associated Company RA, and "*CNAGAT01*" = Associated Company Project Number.**

The **Notes Field** must contain a ***Description of Service, HECO RA Providing the Service,*** and ***HECO Contact Person.***

This information ***must be*** on one (1) continuous line with spaces separating words, and periods (.) separating these required pieces of information. ***Do not*** press the "enter key" between the information. **For example, input in the Notes Field: *Engineering Design for Keahole CT4/CT5. PPJ. John Smith.*, where "*Engineering Design for Keahole CT4/CT5*" = Description of Service, "*PPJ*" = HECO RA Providing the Service, and "*John Smith*" = HECO Contact Person.**

INTEROFFICE CORRESPONDENCE



Hawaiian Electric Co., Inc.

January 28, 2004

To: Officers
Direct Report to Officers

Subject: Instructions and Schedule for the 2005-2009 Planning and Budgeting Process

This year's Planning and Budgeting process has been adjusted to accommodate the timing of the 2005 test year rate case. As such, the overall schedule has been accelerated and we would like to express our appreciation in advance for your continued support and cooperation. (See attached Planning and Budgeting schedule.)

Due to the accelerated schedule, all capital projects, including programs, will need to be prioritized by February 23. Projects lists, which were created from the Pillar files consolidated on December 1, 2003, were distributed to Direct Reports to Officers on January 23 to assist in the prioritization effort. Projects that were created between December 1, 2003 and January 20, 2004 were manually added to the Project lists. Projects created after January 20, 2004 will need to be added to the prioritization lists.

For the 2005 operating budget and 2005 – 2009 capital budget, review the efforts that your area will undertake to support the strategic plan and develop your budgets accordingly. Following are guidelines to assist in developing your budgets:

- Confirm your employee count in Pillar
- Confirm that your intercompany billings (ICB) in Pillar represent the services you will provide to the associated companies. To assist in your review of the completeness of the amounts budgeted for billings to associated companies, we will send you a report with a comparison of ICBs forecast by your department.
- Confirm plant addition dates for capital projects
- Review your resource leveling reports to confirm resources and demands
- Retain all workpapers supporting your estimates as you may be asked at a later date to provide them as support for the 2005 rate case estimates.

The 2005 budget will be the starting point for the test year amounts which will be presented to the Executives at Planning meetings on March 8, 12, 15, and 16. As such, we ask for your support and patience as we develop the test year estimates.

Should you have any questions feel free to call Gail Shimabukuro (7922) or Lorie Nagata (7893).

A handwritten signature in black ink, appearing to read "Rick von Gnechten", is written over a horizontal line.

Rick von Gnechten
Financial Vice President

Attachment

cc: Paul Fujioka
Lyle Matsunaga

PLANNING AND BUDGETING PREPARATION SCHEDULE

Intercompany Billings:

March 3	HELCO/MECO complete and send request for recurring services (if significant changes anticipated) and non-recurring services to HECO
March 17	HECO complete and send Intercompany Service form with high level estimates to HELCO/MECO
March 31	Last day to finalize intercompany billing form (Send a copy of Intercompany Service form to Management Accounting KS3-KC.)

Planning:

Ongoing- Feb 2	Users submit Project Identification Form (PIF) to Budgets for all projects and programs.
Feb 4	Budgets distributes Pillar files
Feb 12	Complete revisions to labor estimates for resource leveling: <ul style="list-style-type: none">• Users complete labor estimates in Project (for project and program demand) and Non-project (for non-project/non-program demand and RA supply) files• Users place copy of completed Project and Non-project files in the appropriate folder on the O: drive by 12 noon
Feb 23	Users complete 2004-2009 estimates in Pillar files. (Users place copy of completed Project and Non-project files in the appropriate folder on the O: drive by 12 noon)
Feb 23	Process Areas complete prioritization for capital work. Process areas electronically submit prioritized list of work to Wendy Yamamoto.
March 8 (12:00 – 4:00)	Capital Budget Committee Meeting
March 12 (12:00 – 4:00)	Planning meeting with Officers
March 15 (8:00 - 12:00)	Planning meeting with Officers
March 16 (12:30 – 4:30)	Planning meeting with Officers
March 19 (12:00 – 4:00)	Planning meeting with Officers

Budgeting:

April 5	Budgets distributes Pillar files
April 21	Users complete 2004–2009 estimates in Pillar files. (Users place copy of completed Project and Non-project files in the appropriate folder on the O: drive by 12 noon)

INTEROFFICE CORRESPONDENCE



Hawaiian Electric Co., Inc.

April 5, 2004

To: Officers
Direct Reports to Officers

Subject: Budget Recycle: 2005 Non-Project and 2004-2009 Project/Program Budget

Thank you for your flexibility, contributions and support of this year's budgeting effort. The review process has been completed and you will now have an opportunity to make any necessary corrections and/or revisions to the 2005 non-project and the 2004-2009 project/program budget. For non-project corrections/revisions not previously identified, please contact Joanne Takamura at ext. 5615 prior to making any changes. For project/program revisions, Gail Shimabukuro will be contacting you. Following are guidelines to assist you in completing your budgets:

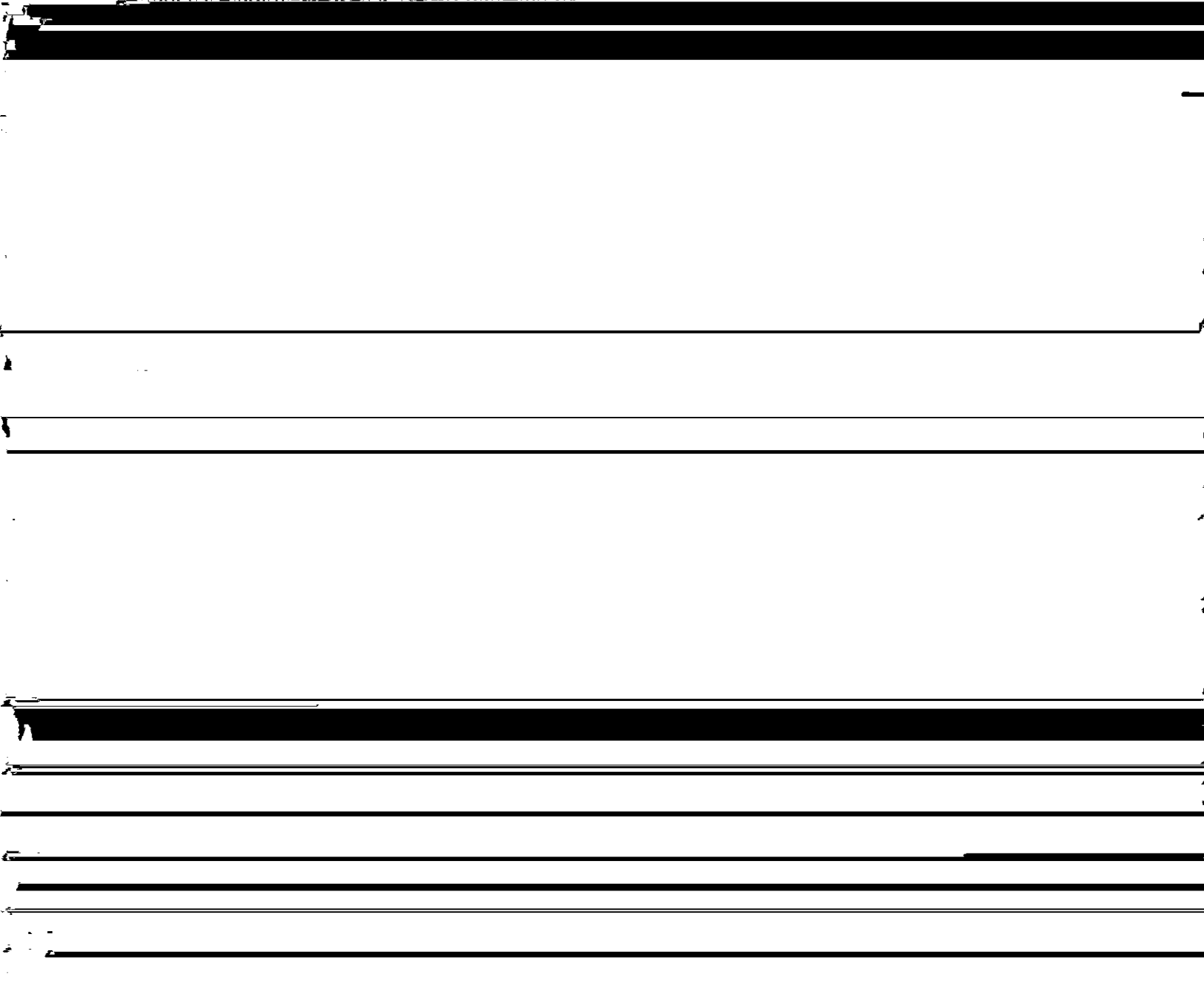
- Confirm plant addition dates for capital projects
- Review your resource leveling reports to confirm resources and demands
- Retain all work papers supporting your estimates as you may be asked at a later date to provide them as support for the 2005 rate case estimates.

The following schedule has been developed for the recycle:

Apr 5	Pillar file distribution: Pillar Administrator distributes Pillar files to Department folders
Apr 12 Noon	Complete revised 2005 labor estimates for resource leveling Users complete revisions for 2005 labor estimates in Project (for project and program demand) and Non-Project (for non-project/non-program demand and RA supply) files and place a copy in the appropriate folder on the O:drive.
Apr 13	Pillar Administrator distributes 2005 Resource Leveling Reports for review, analysis, and to aid in balancing RA resource supply and demand
Apr 21 Noon	Complete revised 2005 non-project and 2004-2009 project/program estimates: Users complete the 2005 non-project and 2004-2009 project/program estimates Users place copy of completed files in the appropriate folder on the O:drive

CA-IR-9

Please provide a detailed statement of HECO and HEI actual employee levels on a quarterly basis for each year 2001 through 2004, indicating the numbers of full-time, part-time and temporary employees in each department and responsibility area ("RA") and/or other appropriate



work groups and the comparable numbers of authorized, but unfilled positions of each type within each department, RA or work group.

HECO Response:

Reports containing the requested information on HECO and HEI's actual employee levels at the end of each quarter are available for the years 2001-2004. These reports reflect the organization

The forecast employee count at the end of each quarter for HECO is provided for the years 2001-2004 on pages 2 to 6. This information is available by department for the years 2002-2004 but only available by Vice President for the year 2001. For HEI, only an annual forecast employee count is available for the requested years and is shown on page 7.

HAWAIIAN ELECTRIC COMPANY, INC.
FORECAST EMPLOYEE COUNT
2001

	MAR	JUNE	SEPT	DEC
VP-Corp Excellence	89	89	89	90
VP-Corp Relations	22	22	22	22
VP-Energy Delivery	592	593	593	593
Financial VP & Treasurer	154	154	154	154
VP-Cust Opn-Gen Coun	191	191	195	195
VP-Reg Aff&Gov Rel	13	12	12	12
VP-Power Supply	393	398	401	401
President	9	9	9	9
TOTAL	1,463	1,468	1,475	1,476

HAWAIIAN ELECTRIC COMPANY, INC.
FORECAST EMPLOYEE COUNT
2002

	Mar	June	Sept	Dec
COMPENSATION AND BENEFITS	14	14	14	14
INDUSTRIAL RELATIONS	9	9	9	9
SAFETY, SECURITY & FACILITIES	42	42	42	42
VP CORPORATE EXCELLENCE	2	2	2	2
WORKFORCE STAFFING & DEVELOP	16	16	16	16
CORPORATE COMMUNICATIONS	9	9	9	9
VP CORPORATE RELATIONS	2	2	2	2
CONSTRUCTION & MAINTENANCE	209	209	209	209
CUSTOMER INSTALLATION	51	51	51	51
ENGINEERING	87	87	87	87
PROJECT MANAGEMENT	7	7	7	7
SUPPORT SERVICES	74	74	74	74
SYSTEM OPERATION	105	105	104	104
VP ENERGY DELIVERY	2	2	2	2
FINANCIAL VICE PRESIDENT	2	2	2	2
GENERAL ACCOUNTING	25	25	25	25
INFO SECURITY & OFFICE SVCS	19	19	19	19
INFO TECHNOLOGY & SVCS	74	74	74	74
RISK MANAGEMENT	0	0	0	0
MANAGEMENT ACCTG & FIN SVCS	22	22	22	22
CUSTOMER SERVICE	121	121	121	121
ENERGY SERVICES	43	43	43	43
LEGAL	15	15	15	15
VP GENERAL COUNSEL	2	2	2	2
EDUCATION & CONSUMER AFFAIRS	6	6	6	6
GOVERNMENTAL RELATIONS	3	2	2	2
REGULATORY AFFAIRS	6	6	6	6
VP GOVT & COMMUNITY AFFAIRS	4	4	4	4
ENVIRONMENTAL	23	23	23	23
PLNG & ENGN	35	35	35	35
PRODUCTION	326	328	326	326
VP POWER SUPPLY	2	2	2	2
INTERNAL AUDIT	4	4	4	4
PRESIDENT'S OFFICE	4	4	4	4
SVP OPER	2	2	2	2
SVP PUB AFF	2	2	2	2
TOTAL	1,378	1,379	1,376	1,376

HAWAIIAN ELECTRIC COMPANY, INC.
FORECAST EMPLOYEE COUNT
2003

	MAR	JUNE	SEPT	DEC
CORPORATE EXCELLENCE				
COMPENSATION AND BENEFITS	14	14	14	14
INDUSTRIAL RELATIONS	9	9	9	9
SAFETY, SECURITY & FACILITIES	42	42	42	42
VP CORPORATE EXCELLENCE	2	2	2	2
WORKFORCE STAFFING & DEVELOP	16	16	16	16
CORPORATE RELATIONS				
CORPORATE COMMUNICATIONS	10	10	10	10
VP CORPORATE RELATIONS	2	2	2	2
ENERGY DELIVERY				
CONSTRUCTION & MAINTENANCE	240	240	240	240
CUSTOMER INSTALLATION	51	52	52	51
ENGINEERING	80	80	80	80
PROJECT MANAGEMENT	6	6	6	6
SUPPORT SERVICES	83	83	83	83
SYSTEM OPERATION	104	104	104	105
VP ENERGY DELIVERY	3	3	3	3
ENERGY SOLUTIONS				
CUSTOMER INSTALLATION				
SVP-ENERGY SOLUTIONS	3	3	3	3
TECHNOLOGY	2	2	2	2
FINANCE				
FINANCIAL VICE PRESIDENT	2	2	2	2
GENERAL ACCOUNTING	25	25	25	25
INFO SECURITY & OFFICE SVCS	19	19	19	19
INFO TECHNOLOGY & SVCS	77	77	77	77
RISK MANAGEMENT	9	9	9	9
MANAGEMENT ACCTG & FIN SVCS	22	22	22	22
GENERAL COUNSEL				
CUSTOMER SERVICE	122	122	123	123
ENERGY SERVICES	43	43	43	43
LEGAL	15	15	15	15
VP GENERAL COUNSEL	2	2	2	2
GOVT & COMMUNITY AFFAIRS				
EDUCATION & CONSUMER AFFAIRS	7	7	7	7
GOVERNMENTAL RELATIONS	3	2	2	2
REGULATORY AFFAIRS	7	7	7	7
VP GOVT & COMMUNITY AFFAIRS	5	5	5	5
POWER SUPPLY				
ENVIRONMENTAL	23	23	23	23
PLANNING & ENGINEERING	55	55	55	55
PRODUCTION	309	309	309	309
VP POWER SUPPLY	2	2	2	2
PRESIDENT-HECO				
INTERNAL AUDIT	6	6	6	6
PRESIDENT'S OFFICE	4	4	4	4
SR VP OPERATIONS	2	2	2	2
SR VP PUBLIC AFFAIRS	2	2	2	2
TOTAL	1428	1428	1429	1429

MAR		JUNE		SEPT		DEC	
1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	

13 13 14 14

42	42	42	42
2	2	2	2
15	15	16	16

11	11	11	11
2	2	2	2

201	204	210	210
78	78	78	78
6	6	7	7
79	78	79	80
96	102	106	106
3	3	3	3

45	46	47	46
5	5	5	5
42	42	42	42
3	3	3	3
3	3	3	3
2	2	2	2

3	3	3	3
25	25	25	25
94	94	94	94
9	9	9	9
21	21	22	22

14	14	16	16
2	2	2	2

7	7	7	7
3	2	2	2
7	7	7	7
5	5	5	5

23	23	23	24
50	50	50	50
316	318	316	315

HAWAIIAN ELECTRIC INDUSTRIES, INC.
FORECAST EMPLOYEE COUNT

Department Name	RA	YEAR			
		2001	2002	2003	2004
President's Office	9Z	2	2	2	2
Internal Audit	ZA	5	5	4	4
VP Administration	Z3	2	2	2	2
Corporate Secretary	3S	1	1	1	1
VP Finance	Z4	2	2	2	2
Controller's Dept	4C	5	5	9	9
Strategic Planning	1S	1	1	0	0
Taxes	4P	2	2	7	7
Treasury *	4T	7	7	2	2
Corporate Finance & Investments	4F	2	2	0	0
Investor Relations	TI	2	2	2	2
Stock Transfer	TT	5	5	5	5
VP Info Systems	Z6	3	3	6	6
Information Technology Department	6D	8	5	0	0
VP Government Relations	Z7	2	2	2	2
Community Relations	9C	2	2	2	2
TOTAL		51	48	46	46

* Renamed Benefit Plan Asset Mgt in 2004

Due to the voluminous nature of the information, one copy (pages 7 to 211) will be provided to the Consumer Advocate and the Public Utilities Commission under separate transmittal.

CA-IR-10

Please provide a complete copy of the most recently filed Federal and State income tax returns for HEI, including all supporting schedules.

HECO Response:

HECO objects to the request that it provide the most recently filed Federal and State income tax returns for HEI. Revenue requirements are evaluated on a HECO stand alone basis and therefore the HEI consolidated income tax returns are not relevant to this docket. However, to respond to this request, HECO is providing the HECO stand alone proforma federal and Hawaii income tax returns for 2003, which are extracted from the consolidated income tax returns.

Form **1120**

Department of the Treasury
Internal Revenue Service

U.S. Corporation Income Tax Return

For calendar year 2003 or tax year beginning _____, 20____, ending _____, 20____
▶ Instructions are separate. See page 20 for Paperwork Reduction Act Notice.

OMB No. 1545-0123

2003

A Check if a: 1 Consolidated return (attach Form 990) <input type="checkbox"/> 2 Personal holding co. (attach Sch. PH) <input type="checkbox"/> 3 Personal service corp. (as defined in Regulations sec. 1.441-3(c) — see instructions) <input type="checkbox"/>	Use IRS label. Otherwise, print or type.	Name HAWAIIAN ELECTRIC COMPANY, INC.	B Employer identification number 99-0040500
		Number, street, and room or suite no. (If a P.O. box, see page 7 of instructions.) P.O. BOX 730	
		City or town, state, and ZIP code HONOLULU HI 96808-0730	
		C Date incorporated 10/13/1891	
		D Total assets (see page 8 of instructions)	

E Check applicable boxes: (1) <input type="checkbox"/> Initial return (2) <input type="checkbox"/> Final return (3) <input type="checkbox"/> Name change (4) <input type="checkbox"/> Address change		\$ 1,902,131,507				
Income	1a Gross receipts or sales	962,469,986	b Less returns and allowances		c Bal	
	2 Cost of goods sold (Schedule A, line 8)				1c	962,469,986
	3 Gross profit. Subtract line 2 from line 1c				2	626,807,802
	4 Dividends (Schedule C, line 19)				3	335,662,184
	5 Interest				4	4,125
	6 Gross rents				5	611,753
	7 Gross royalties				6	839,710
	8 Capital gain net income (attach Schedule D (Form 1120))				7	
	9 Net gain or (loss) from Form 4797, Part II, line 18 (attach Form 4797)				8	401,862
	10 Other income (see page 9 of instructions — attach schedule)			See Statement 1	9	
	11 Total income. Add lines 3 through 10				10	2,703,454
Deductions (See instructions for limitations on deductions.)	12 Compensation of officers (Schedule E, line 4)				11	340,223,088
	13 Salaries and wages (less employment credits)				12	4,356,016
	14 Repairs and maintenance				13	
	15 Bad debts				14	
	16 Rents				15	1,024,321
	17 Taxes and licenses			See Statement 2	16	1,647,584
	18 Interest				17	94,275,396
	19 Charitable contributions (see page 11 of instructions for 10% limitation)				18	28,879,078
	20 Depreciation (attach Form 4562)		20	68,178,879	19	
	21 Less depreciation claimed on Schedule A and elsewhere on return		21a		20	
	22 Depletion				21b	68,178,879
	23 Advertising				22	
	24 Pension, profit-sharing, etc., plans				23	(4,964)
	25 Employee benefit programs				24	23,143,588
	26 Other deductions (attach schedule)			See Statement 3	25	8,951,122
	27 Total deductions. Add lines 12 through 26				26	57,353,445
	28 Taxable income before net operating loss deduction and special deductions. Subtract line 27 from line 11				27	287,804,465
	29 Less: a Net operating loss (NOL) deduction (see page 13 of instructions)		29a		28	52,418,623
	b Special deductions (Schedule C, line 20)		29b	69,351	29c	69,351
Tax and Payments	30 Taxable income. Subtract line 29c from line 28				30	52,349,272
	31 Total tax (Schedule J, line 11)				31	18,322,245
	32 Payments: a 2002 overpayment credited to 2003	32a				
	b 2003 estimated tax payments	32b	20,955,000			
	c Less 2003 refund applied for on Form 4466	32c				
	d Bal	32d	20,955,000			
	e Tax deposited with Form 7004	32e				
	f Credit for tax paid on undistributed capital gains (attach Form 2439)	32f				
	g Credit for Federal tax on fuels (attach Form 4136). See instructions.	32g				
	33 Estimated tax penalty (see page 14 of instructions). Check if Form 2220 is attached				32h	20,955,000
34 Tax due. If line 32h is smaller than the total of lines 31 and 33, enter amount owed				33		
35 Overpayment. If line 32h is larger than the total of lines 31 and 33, enter amount overpaid				34		
36 Enter amount of line 35 you want: Credited to 2004 estimated tax			Refunded	35	2,632,755	
				36	2,632,755	

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

Sign Here

Signature of officer

Date

FINANCIAL VP, TREASURER & CFO
Title

May the IRS discuss this return with the preparer shown below (see instructions)? ☐ Yes ☐ No

Paid Preparer's Use Only

Preparer's signature

Date

Check if self-employed ☐

Preparer's SSN or PTIN

Firm's name (or yours if self-employed), address, and ZIP code

KPMG LLP
P.O. BOX 4150 HONOLULU, HI 06812-4150

EIN 13-5565207
Phone no. ()

AIAN ELECTRIC COMPANY, INC. 99-0040500

Form 1120 (2003)

Page 2

Schedule A Cost of Goods Sold (See page 14 of instructions.)

1	Inventory at beginning of year	1	34,777,147
2	Purchases	2	7,613,656
3	Cost of labor	3	
4	Additional section 263A costs (attach schedule)	4	
5	Other costs (attach schedule) See Statement 4	5	626,807,802
6	Total. Add lines 1 through 5	6	669,198,605
7	Inventory at end of year	7	42,390,803
8	Cost of goods sold. Subtract line 7 from line 6. Enter here and on line 2, page 1	8	626,807,802

9a Check all methods used for valuing closing inventory:

- (i) ☐ Cost as described in Regulations section 1.471-3
 (ii) ☐ Lower of cost or market as described in Regulations section 1.471-4
 (iii) ☐ Other (Specify method used and attach explanation.) ▶

b Check if there was a writedown of subnormal goods as described in Regulations section 1.471-2(c) ▶ ☐

c Check if the LIFO inventory method was adopted this tax year for any goods (if checked, attach Form 970) ▶ ☐

d If the LIFO inventory method was used for this tax year, enter percentage (or amounts) of closing inventory computed under LIFO 9d 0.00

e If property is produced or acquired for resale, do the rules of section 263A apply to the corporation? ☐ Yes ☐ No

f Was there any change in determining quantities, cost, or valuations between opening and closing inventory? If "Yes," attach explanation. ☐ Yes ☐ No

Schedule C Dividends and Special Deductions (see instructions beginning on page 15)

	(a) Dividends received	(b) %	(c) Special deductions (a) x (b)
1 Dividends from less-than-20%-owned domestic corporations that are subject to the 70% deduction (other than debt-financed stock)	4,125	70	2,888
2 Dividends from 20%-or-more-owned domestic corporations that are subject to the 80% deduction (other than debt-financed stock)		80	
3 Dividends on debt-financed stock of domestic and foreign corporations (section 246A)		see instructions	
4 Dividends on certain preferred stock of less-than-20%-owned public utilities		42	
5 Dividends on certain preferred stock of 20%-or-more-owned public utilities		48	
6 Dividends from less-than-20%-owned foreign corporations and certain FSCs that are subject to the 70% deduction		70	
7 Dividends from 20%-or-more-owned foreign corporations and certain FSCs that are subject to the 80% deduction		80	
8 Dividends from wholly owned foreign subsidiaries subject to the 100% deduction (section 245(b))		100	
9 Total. Add lines 1 through 8. See page 16 of instructions for limitation			2,888
10 Dividends from domestic corporations received by a small business investment company operating under the Small Business Investment Act of 1958		100	
11 Dividends from certain FSCs that are subject to the 100% deduction (section 245(c)(1))		100	
12 Dividends from affiliated group members subject to the 100% deduction (section 243(a)(3))		100	
13 Other dividends from foreign corporations not included on lines 3, 6, 7, 8, or 11			
14 Income from controlled foreign corporations under subpart F (attach Form(s) 5471)			
15 Foreign dividend gross-up (section 78)			
16 IC-DISC and former DISC dividends not included on lines 1, 2, or 3 (section 246(d))			
17 Other dividends			
18 Deduction for dividends paid on certain preferred stock of public utilities			66,463
19 Total dividends. Add lines 1 through 17. Enter here and on line 4, page 1	4,125		
20 Total special deductions. Add lines 9, 10, 11, 12, and 18. Enter here and on line 29b, page 1			69,351

Schedule E Compensation of Officers (See instructions for line 12, page 1, on page 10 of instructions)

Note: Complete Schedule E only if total receipts (line 1a plus lines 4 through 10 on page 1) are \$500,000 or more.

(a) Name of officer	(b) Social security number	(c) Percent of time devoted to business	Percent of corporation stock owned		(f) Amount of compensation
			(d) Common	(e) Preferred	
1		%	%	%	
See statement		%	%	%	4,356,016
		%	%	%	
		%	%	%	
2 Total compensation of officers					4,356,016
3 Compensation of officers claimed on Schedule A and elsewhere on return					
4 Subtract line 3 from line 2. Enter the result here and on line 12, page 1					4,356,016

Form 1120 (2003)

/AIIAN ELECTRIC COMPANY, INC. 99-0040500

Form 1120 (2003)

Page 3

Schedule J Tax Computation (See page 17 of instructions.)

1	Check if the corporation is a member of a controlled group (see sections 1561 and 1563) <input type="checkbox"/>		
Important: Members of a controlled group, see instructions on page 17.			
2a	If the box on line 1 is checked, enter the corporation's share of the \$50,000, \$25,000, and \$9,925,000 taxable income brackets (in that order):		
	(1) \$	(2) \$	(3) \$
b	Enter the corporation's share of: (1) Additional 5% tax (not more than \$11,750) \$ (2) Additional 3% tax (not more than \$100,000) \$		
3	Income tax. Check if a qualified personal service corporation under section 448(d)(2) (see page 17) <input type="checkbox"/>	3	18,322,245
4	Alternative minimum tax (attach Form 4626)	4	
5	Add lines 3 and 4	5	18,322,245
6a	Foreign tax credit (attach Form 1118)	6a	
b	Possessions tax credit (attach Form 5735)	6b	
c	Check: <input type="checkbox"/> Nonconventional source fuel credit <input type="checkbox"/> QEV credit (attach Form 8834)	6c	
d	General business credit. Check box(es) and indicate which forms are attached. <input type="checkbox"/> Form 3800 <input type="checkbox"/> Form(s) specify	6d	
e	Credit for prior year minimum tax (attach Form 8827)	6e	
f	Qualified zone academy bond credit (attach Form 8860)	6f	
7	Total credits. Add lines 6a through 6f	7	
8	Subtract line 7 from line 5	8	18,322,245
9	Personal holding company tax (attach Schedule PH (Form 1120))	9	
10	Other taxes. Check if from: <input type="checkbox"/> Form 4255 <input type="checkbox"/> Form 8611 <input type="checkbox"/> Form 8697 <input type="checkbox"/> Form 8866 <input type="checkbox"/> Other (attach schedule)	10	
11	Total tax. Add lines 8 through 10. Enter here and on line 31, page 1	11	18,322,245

Schedule K Other Information (See page 19 of instructions.)

1	Check method of accounting: a <input type="checkbox"/> Cash b <input checked="" type="checkbox"/> Accrual c <input type="checkbox"/> Other (specify) <input type="checkbox"/>	Yes	No	7	At any time during the tax year, did one foreign person own, directly or indirectly, at least 25% of (a) the total voting power of all classes of stock of the corporation entitled to vote, or (b) the total value of all classes of stock of the corporation?	Yes	No
2	See page 21 of the instructions and enter the:				If "Yes," enter: (a) Percentage owned <input type="checkbox"/> and (b) Owner's country <input type="checkbox"/>		
a	Business activity code no. <input type="checkbox"/> 221100			c	The corporation may have to file Form 5472, Information Return of a 25% Foreign-Owned U.S. Corporation or a Foreign Corporation Engaged in a U.S. Trade or Business. Enter number of Forms 5472 attached <input type="checkbox"/>		
b	Business activity <input type="checkbox"/> ELECTRIC SERVICES			8	Check this box if the corporation issued publicly offered debt instruments with original issue discount <input type="checkbox"/> If checked, the corporation may have to file Form 8281, Information Return for Publicly Offered Original Issue Discount Instruments.		
3	At the end of the tax year, did the corporation own, directly or indirectly, 50% or more of the voting stock of a domestic corporation? (For rules of attribution, see section 267(c).) <input type="checkbox"/> If "Yes," attach a schedule showing: (a) name and employer identification number (EIN), (b) percentage owned, and (c) taxable income or (loss) before NOL and special deductions of such corporation for the tax year ending with or within your tax year. See Attached			9	Enter the amount of tax-exempt interest received or accrued during the tax year <input type="checkbox"/> \$		
4	Is the corporation a subsidiary in an affiliated group or a parent-subsidiary controlled group? <input type="checkbox"/> If "Yes," enter name and EIN of the parent corporation <input type="checkbox"/>			10	Enter the number of shareholders at the end of the tax year (if 75 or fewer) <input type="checkbox"/>		
5	At the end of the tax year, did any individual, partnership, corporation, estate, or trust own, directly or indirectly, 50% or more of the corporation's voting stock? (For rules of attribution, see section 267(c).) <input type="checkbox"/> If "Yes," attach a schedule showing name and identifying number. (Do not include any information already entered in 4 above.) Enter percentage owned <input type="checkbox"/>			11	If the corporation has an NOL for the tax year and is electing to forego the carryback period, check here <input type="checkbox"/> If the corporation is filing a consolidated return, the statement required by Regulations section 1.1502-21(b)(3)(i) or (ii) must be attached or the election will not be valid.		
				12	Enter the available NOL carryover from prior tax years (Do not reduce it by any deduction on line		

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Note: The corporation is not required to complete Schedules L, M-1, and M-2 if Question 13 on Schedule K is answered "Yes."

Schedule L Balance Sheets per Books		Beginning of tax year		End of tax year	
Assets		(a)	(b)	(c)	(d)
1	Cash				
2a	Trade notes and accounts receivable				
b	Less allowance for bad debts	()		()	
3	Inventories				
4	U.S. government obligations		SEE STATEMENT ATTACHED		
5	Tax-exempt securities (see instructions)				
6	Other current assets (attach schedule)				
7	Loans to shareholders				
8	Mortgage and real estate loans				
9	Other investments (attach schedule)				
10a	Buildings and other depreciable assets				
b	Less accumulated depreciation	()		()	
11a	Depletable assets				
b	Less accumulated depletion	()		()	
12	Land (net of any amortization)				
13a	Intangible assets (amortizable only)				
b	Less accumulated amortization	()		()	
14	Other assets (attach schedule)				
15	Total assets		0		
Liabilities and Shareholders' Equity					
16	Accounts payable				
17	Mortgages, notes, bonds payable in less than 1 year				
18	Other current liabilities (attach schedule)				
19	Loans from shareholders				
20	Mortgages, notes, bonds payable in 1 year or more				
21	Other liabilities (attach schedule)				
22	Capital stock: a Preferred stock				
	b Common stock				
23	Additional paid-in capital				
24	Retained earnings — Appropriated (attach schedule)				
25	Retained earnings — Unappropriated				
26	Adjustments to shareholders' equity (attach schedule)				
27	Less cost of treasury stock	()		()	
28	Total liabilities and shareholders' equity				

Schedule M-1 Reconciliation of Income (Loss) per Books With Income per Return (see page 20 of instructions)				
1	Net income (loss) per books	79,991,039	7	Income recorded on books this year not included on this return (itemize):
2	Federal income tax per books	21,303,393		Tax-exempt interest \$
3	Excess of capital losses over capital gains			SEE STMT 7
4	Income subject to tax not recorded on books this year (itemize):			29,479,299
	SEE STMT 5	1,897,811	8	Deductions on this return not charged against book income this year (itemize):
5	Expenses recorded on books this year not deducted on this return (itemize):			a Depreciation
a	Depreciation	\$ 67,216,030		\$ 68,027,965
b	Charitable contributions	\$		b Charitable contributions \$
c	Travel and entertainment	58,502		SEE STMT 8
	SEE STMT 6	33,052,175		53,593,063
6	Add lines 1 through 5	100,326,707	9	Add lines 7 and 8
		203,518,950		151,100,327
			10	Income (line 28, page 1) — line 6 less line 9
				52,418,623

Schedule M-2 Analysis of Unappropriated Retained Earnings per Books (Line 25, Schedule L)				
1	Balance at beginning of year	542,022,861	5	Distributions: a Cash
2	Net income (loss) per books	79,991,039		b Stock
3	Other increases (itemize):			c Property
	SEE STMT 9	4	6	Other decreases (itemize):
4	Add lines 1, 2, and 3	622,013,904	7	Add lines 5 and 6
				58,798,907
			8	Balance at end of year (line 4 less line 7)
				563,214,997

**SCHEDULE D
(Form 1120)**

Department of the Treasury
Internal Revenue Service

Capital Gains and Losses

▶ Attach to Form 1120, 1120-A, 1120-F, 1120-FSC, 1120-H,
1120-IC-DISC, 1120-L, 1120-ND, 1120-PC, 1120-POL, 1120-REIT,
1120-RIC, 1120-SF, 990-C, or certain Forms 990-T

OMB No. 1545-0123

2003

Name

HAWAIIAN ELECTRIC COMPANY, INC.

Employer identification number

99 0040500

Part I Short-Term Capital Gains and Losses—Assets Held One Year or Less

(a) Description of property (Example, 100 shares of Z Co.)	(b) Date acquired (mo., day, yr.)	(c) Date sold (mo., day, yr.)	(d) Sales price (see instructions)	(e) Cost or other basis (see instructions)	(f) Gain or (loss) Subtract (e) from (d)
1					
Rabbi Trust	Various	Various	940		940
Electric Discount Trust K-1	Various	Various	3,550		3,550
2 Short-term capital gain from installment sales from Form 6252, line 26 or 37					2
3 Short-term gain or (loss) from like-kind exchanges from Form 8824					3
4 Unused capital loss carryover (attach computation)					4 ()
5 Net short-term capital gain or (loss). Combine lines 1 through 4					5 4,490

Part II Long-Term Capital Gains and Losses—Assets Held More Than One Year

6					
Prudential Stock	Various	6/03	287,536		287,536
Iolani Court Plaza #1009	Various	12/8/03	117,794	7,958	109,836
7 Enter gain from Form 4797, column (g), line 7 or 9					7
8 Long-term capital gain from installment sales from Form 6252, line 26 or 37					8
9 Long-term gain or (loss) from like-kind exchanges from Form 8824					9
10 Capital gain distributions (see instructions)					10
11 Net long-term capital gain or (loss). Combine lines 6 through 10					11 397,372

Part III Summary of Parts I and II

12 Enter excess of net short-term capital gain (line 5) over net long-term capital loss (line 11)	12	4,490
13 Net capital gain. Enter excess of net long-term capital gain (line 11) over net short-term capital loss (line 5)	13	397,372
14 Add lines 12 and 13. Enter here and on Form 1120, page 1, line 8, or the proper line on other returns.	14	401,862
Note: If losses exceed gains, see Capital losses in the instructions on page 2.		

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Schedule

Use Schedule D to report sales and exchanges of capital assets and gains on distributions to shareholders of appreciated capital assets.

Note: For more information, see Pub. 544, Sales and Other Dispositions of Assets.

Other Forms the Corporation May Have To File

Use Form 4797, Sales of Business Property, to report the following:

- The sale or exchange of:

1. Property used in a trade or business;
 2. Depreciable and amortizable property;
 3. Oil, gas, geothermal, or other mineral property; and
 4. Section 126 property.
- The involuntary conversion (other than from casualty or theft) of property and capital assets held for business or profit.
 - The disposition of noncapital assets other than inventory or property held primarily for sale to customers in the ordinary course of the corporation's trade or business.
 - The section 291 adjustment to section 1250 property.

Use Form 4684, Casualties and Thefts, to report involuntary conversions of property due to casualty or theft.

Use Form 6781, Gains and Losses From Section 1256 Contracts and Straddles, to report gains and losses from section 1256 contracts and straddles.

Use Form 8824, Like-Kind Exchanges, if the corporation made one or more "like-kind" exchanges. A like-kind exchange occurs when the corporation exchanges business or investment property for property of a like kind. For exchanges of capital assets, include the gain or (loss) from Form 8824, if any, on line 3 or line 9.

Form 4562 Department of the Treasury Internal Revenue Service	Depreciation and Amortization (Including Information on Listed Property) ▶ See separate instructions. ▶ Attach to your tax return.	OMB No. 1545-0172 <div style="font-size: 24pt; font-weight: bold;">2003</div> Attachment Sequence No. 67 Identifying number 99-0040500
Name(s) shown on return HAWAIIAN ELECTRIC COMPANY, INC.		Business or activity to which this form relates

Part I Election To Expense Certain Property Under Section 179
Note: If you have any listed property, complete Part V before you complete Part I.

1 Maximum amount. See page 2 of the instructions for a higher limit for certain businesses.....	1	\$100,000
2 Total cost of section 179 property placed in service (see page 2 of the instructions).....	2	
3 Threshold cost of section 179 property before reduction in limitation.....	3	\$400,000
4 Reduction in limitation. Subtract line 3 from line 2. If zero or less, enter -0-.....	4	
5 Dollar limitation for tax year. Subtract line 4 from line 1. If zero or less, enter -0-. If married filing separately, see page 2 of the instructions.....	5	100,000

(a) Description of property	(b) Cost (business use only)	(c) Elected cost	
6			
7 Listed property. Enter the amount from line 29.....	7		
8 Total elected cost of section 179 property. Add amounts in column (c), lines 6 and 7.....	8		
9 Tentative deduction. Enter the smaller of line 5 or line 8.....	9		
10 Carryover of disallowed deduction from line 13 of your 2002 Form 4562.....	10		
11 Business income limitation. Enter the smaller of business income (not less than zero) or line 5 (see instructions).....	11	100,000	
12 Section 179 expense deduction. Add lines 9 and 10, but do not enter more than line 11.....	12		
13 Carryover of disallowed deduction to 2004. Add lines 9 and 10, less line 12 ▶	13		

Note: Do not use Part II or Part III below for listed property. Instead, use Part V.

Part II Special Depreciation Allowance and Other Depreciation (Do not include listed property.)

14 Special depreciation allowance for qualified property (other than listed property) placed in service during the tax year (see page 3 of the instructions).....	14	13,410,147
15 Property subject to section 168(f)(1) election (see page 4 of the instructions).....	15	
16 Other depreciation (including ACRS) (see page 4 of the instructions).....	16	297,546

Part III MACRS Depreciation (Do not include listed property.) (See page 4 of the instructions.)

Section A	
17 MACRS deductions for assets placed in service in tax years beginning before 2003.....	52,805,998
18 If you are electing under section 168(i)(4) to group any assets placed in service during the tax year into one or more general asset accounts, check here <input type="checkbox"/> <input checked="" type="checkbox"/>	

Section B — Assets Placed in Service During 2003 Tax Year Using the General Depreciation System

(a) Classification of property	(b) Month and year placed in service	(c) Basis for depreciation (business/investment use only — see instructions)	(d) Recovery period	(e) Convention	(f) Method	(g) Depreciation deduction
19a 3-year property						
b 5-year property		1,372,885	5	HY	DDB	274,577
c 7-year property		826,158	7	HY	DDB	118,025
d 10-year property						
e 15-year property		17,291	15	HY	150 DB	865
f 20-year property		31,669,394	20	HY	150 DB	1,187,602
g 25-year property			25 yrs.		S/L	
h Residential rental property			27.5 yrs.	MM	S/L	
			27.5 yrs.	MM	S/L	
i Nonresidential real property	VARIOUS	5,306,127	39 yrs.	MM	S/L	28,335
				MM	S/L	

Section C — Assets Placed in Service During 2003 Tax Year Using the Alternative Depreciation System

Form	4626	Alternative Minimum Tax—Corporations	OMB No. 1545-0175
Department of the Treasury Internal Revenue Service		▶ See separate instructions. ▶ Attach to the corporation's tax return.	2003
Name HAWAIIAN ELECTRIC COMPANY, INC.			Employer identification number 99 0040500
Note: See page 1 of the instructions to find out if the corporation is a small corporation exempt from the AMT under section 55(e).			
1	Taxable income or (loss) before net operating loss deduction		52,349,272
2	Adjustments and preferences:		
a	Depreciation of post-1986 property		6,310,493
b	Amortization of certified pollution control facilities		
c	Amortization of mining exploration and development costs		
d	Amortization of circulation expenditures (personal holding companies only)		
e	Adjusted gain or loss		230,379
f	Long-term contracts		
g	Merchant marine capital construction funds		
h	Section 833(b) deduction (Blue Cross, Blue Shield, and similar type organizations only)		
i	Tax shelter farm activities (personal service corporations only)		
j	Passive activities (closely held corporations and personal service corporations only)		
k	Loss limitations		
l	Depletion		
m	Tax-exempt interest income from specified private activity bonds		
n	Intangible drilling costs		
o	Other adjustments		
3	Pre-adjustment alternative minimum taxable income (AMTI). Combine lines 1 and 2o		58,890,144
4	Adjusted current earnings (ACE) adjustment:		
a	ACE from line 10 of the worksheet on page 11 of the instructions	66,368,731	
b	Subtract line 3 from line 4a. If line 3 exceeds line 4a, enter the difference as a negative amount. See examples on page 6 of the instructions	7,478,587	
c	Multiply line 4b by 75% (.75). Enter the result as a positive amount	5,608,940	
d	Enter the excess, if any, of the corporation's total increases in AMTI from prior year ACE adjustments over its total reductions in AMTI from prior year ACE adjustments (see page 6 of the instructions). Note: You must enter an amount on line 4d (even if line 4b is positive)		
e	ACE adjustment. • If line 4b is zero or more, enter the amount from line 4c • If line 4b is less than zero, enter the smaller of line 4c or line 4d as a negative amount		5,608,940
5	Combine lines 3 and 4e. If zero or less, stop here; the corporation does not owe any AMT		64,499,084
6	Alternative tax net operating loss deduction (see page 7 of the instructions)		
7	Alternative minimum taxable income. Subtract line 6 from line 5. If the corporation held a residual interest in a REMIC, see page 7 of the instructions		64,499,084
8	Exemption phase-out (if line 7 is \$310,000 or more, skip lines 8a and 8b and enter -0- on line 8c):		
a	Subtract \$150,000 from line 7 (if completing this line for a member of a controlled group, see page 7 of the instructions). If zero or less, enter -0-		
b	Multiply line 8a by 25% (.25)		
c	Exemption. Subtract line 8b from \$40,000 (if completing this line for a member of a controlled group, see page 7 of the instructions). If zero or less, enter -0-		
9	Subtract line 8c from line 7. If zero or less, enter -0-		64,499,084
10	Multiply line 9 by 20% (.20)		12,899,817
11	Alternative minimum tax foreign tax credit (see page 7 of the instructions)		
12	Tentative minimum tax. Subtract line 11 from line 10		12,899,817
13	Regular tax liability before all credits except the foreign tax credit and possessions tax credit		18,322,245
14	Alternative minimum tax. Subtract line 13 from line 12. If zero or less, enter -0-. Enter here and on Form 1120, Schedule J, line 4, or the appropriate line of the corporation's income tax return		

For Paperwork Reduction Act Notice, see page 10 of the instructions.

Form 4626 (2003)

HAWAIIAN ELECTRIC CO., INC.
99-0040500

Statement 1 - Form 1120, Page 1
Line 10, Other Income

02OTHINC_CIAC_RCD	CIAC RECEIVED	398,615
02OTHINC_CUS_ADV	CUSTOMER ADVANCES	(43,203)
02OTHINC_HIKGOOD	HAWAII CAPITAL GOODS EXCISE TAX CREDIT	1,470,958
02OTHINC_HIOTHCRCR	HAWAII TAX CREDITS - OTHER	107,124
02OTHINC_JVINC	JV AND PARTNERSHIP INCOME OR LOSS	(78,886)
02OTHINC_NONUTIL	NON UTILITY OPERATIONS	611,450
02OTHINC_OTHER	OTHER INCOME	24
02OTHINC_SUBS	EARNINGS FROM SUBSIDIARIES	237,372
		<u>2,703,454</u>

Statement 2 - Form 1120, Page 1
Line 17, Taxes and Licenses

03TAXES_FRANCHSE	FRANCHISE TAXES	23,949,434
03TAXES_GET	GENERAL EXCISE TAXES	4,435
03TAXES_OTHTAX	OTHER TAXES	4,808,113
03TAXES_PAYROLL	PAYROLL TAXES	104,369
03TAXES_PSC	PUBLIC SERVICE COMPANY TAXES	56,496,857
03TAXES_PUC	PUC FEES	4,800,073
03TAXES_STATE	STATE INCOME TAXES	4,112,115
		<u>94,275,396</u>

Statement 3 - Form 1120, Page 1
Line 26, Other Deductions

05OTHDED_ABANDON	ABANDONED / RETIRED ASSETS	1,678,927
05OTHDED_ADMIN	ADMINISTRATIVE & GENERAL	20,838,636
05OTHDED_AMORT	AMORTIZATION EXPENSE	(28,103)
05OTHDED_BONDREDEM	BOND REDEMPTION COSTS	1,026,172
05OTHDED_COR	COST OF REMOVAL EXPENSE	5,758,139
05OTHDED_CUSTACC	CUSTOMER ACCOUNTS / SALES	18,033,541
05OTHDED_DIRECTOR	DIRECTORS' FEES & EXPENSES	3,904
05OTHDED_ENERGY	ENERGY SERVICES	139,645
05OTHDED_INJURY	INJURIES & DAMAGES	5,191,113
05OTHDED_INSUR	INSURANCE EXPENSE	2,930,272
05OTHDED_LEGAL	LEGAL EXPENSES	38,570
05OTHDED_NONUTIL	NONUTILITY OPERATIONS	1,126,160
05OTHDED_OPER_EXP	OPERATING EXPENSES	(3,261)
05OTHDED_PREPAID	PREPAID EXPENSES UNDER IRC1.461-4(m)	(34,613)
05OTHDED_PROFESSIONAL	PROFESSIONAL FEES	731,097
05OTHDED_PUB_REL	PUBLIC RELATIONS AND COMMUNITY	(76,754)
		<u>57,353,445</u>

Statement 4 - Schedule A - Line 5
Other Costs

21OTHCOST_DISTRI	Distribution Costs	17,209,886
21OTHCOST_FUEL	Fuel Oil and Purchased Power	540,286,680
21OTHCOST_PRODUCT	Production Costs	62,322,672
21OTHCOST_TRANSMIS	Transmission Costs	6,988,564
		<u>626,807,802</u>

Statement 5 - Schedule M-1 - Line 4
Income Subject to Tax not Recorded on Books

22MT018	CIAC RECEIVED	398,615
22MT055	HAWAII CAPITAL GOODS EXCISE TAX CREDIT - TAX	1,470,958

HAWAIIAN ELECTRIC CO., INC.
99-0040500

22MT061	HAWAII TAX CREDITS - OTHER TAX	107,124
22MT075	JV & PARTNERSHIP INCOME OR LOSS - TAX	(78,886)
		<u>1,897,811</u>

Statement 6 - Schedule M-1 - Line 5d
Expenses Recorded on Books this Year not Deducted on this Return

24MP003	CLUB DUES	12,720
24MP005	CURRENT STATE INCOME TAXES	3,377,183
24MP006	DEFERRED FEDERAL TAX EXPENSE	5,547,988
24MP007	DEFERRED STATE TAX EXPENSE	547,592
24MP013	LOBBYING	134,431
24MP018	POLITICAL CONTRIBUTIONS	250
24MP019	PREFERRED STOCK ISSUE COSTS	55,086
24MT007	APPRISE COSTS	1,940,356
24MT008	BAD DEBTS - BOOK	1,122,855
24MT012	BOND ISSUE EXP - BOOK AMORT	316,716
24MT015	CAPITALIZED INTEREST	4,173,055
24MT032	DIRECTORS' COMPENSATION - BOOK	11,096
24MT065	INTEREST EXPENSE - BOOK	355,824
24MT082	PENSION - EXCESS PLAN BOOK	112,411
24MT086	PENSION - OPEB BOOK	8,207,605
24MT088	PENSION - SERP BOOK	231,430
24MT090	PENSION EXPENSE - BOOK	5,894,495
24MT102	RESERVES - BOOK	(272,297)
24MT105	SOFTWARE - BOOK	(44,870)
24MT132	EMISSIONS FEE	755,984
24MT133	AES HI PPA AMENDMENT	163,388
24MT137	CIS PROJECT	408,877
		<u>33,052,175</u>

Statement 7 - Schedule M-1 - Line 7b
Income Recorded on Books not Included in Return

25MP002	BOOK EQUITY INCOME	29,221,937
25MT024	CUSTOMER ADVANCES RECEIVED	43,203
25MT027	DEFERRED GAIN - BOOK AMORT	142,736
25MT076	LEASE RENT PREMIUM - BOOK AMORT	6,845
25MT115	WAI'AU WATER WELL - BOOK AMORT	64,578
		<u>29,479,299</u>

Statement 8 - Schedule M-1 - Line 8c
Deductions not Charged against Book Income

27MP011	KEYMAN LIFE INSURANCE	649,332
27MP020	STATE INCOME TAXES - TAX	4,112,115
27MT002	AFUDC - DEBT	1,658,405
27MT003	AFUDC - EQUITY	3,652,445
27MT004	AFUDC - EQUITY GROSS UP	2,326,327
27MT009	BAD DEBTS - TAX	1,131,878
27MT010	BARBER'S POINT RESERVE	142,462
27MT011	BOND INTEREST DEFERRAL	---

HAWAIIAN ELECTRIC CO., INC.
99-0040500

27MT046	ENERGY SERVICES - TAX	139,645
27MT079	LOSS ON ABANDONED ASSETS	1,678,927
27MT083	PENSION - EXCESS PLAN TAX	62,846
27MT087	PENSION - OPEB TAX	7,063,555
27MT089	PENSION - SERP TAX	123,162
27MT091	PENSION EXPENSE - TAX	23,080,742
27MT092	PREPAID EXPENSES UNDER §1.461-4(m)	(34,613)
27MT114	VACATION - TAX	(6,716)
27MT117	WORKERS COMPENSATION - TAX	574,535
		<u>53,593,063</u>

Statement 9 - Schedule M-2 - Line 3
Other Increases

28	Rounding	<u>4</u>
		<u>4</u>

HAWAIIAN ELECTRIC COMPANY, INC.
BALANCE SHEET

	<u>2002</u>	<u>2003</u>
ASSETS:		
Plant & Equipment	2,047,717,387	2,108,794,655
Accumulated Depreciation	(765,576,973)	(814,699,047)
Property Held - Future Use	598,735	598,735
Plant Work in Progress	63,245,993	93,449,742
Investment in Assoc. Cos.	355,868,948	364,972,846
Other Property Total	6,249,961	6,097,348
Cash	8,595	8,295
Customer Accounts Receivable	61,666,231	63,559,239
Accrued Unbilled Revenues	41,309,919	41,242,646
Other Accounts Receivable	2,713,193	2,096,720
Allowance for Bad Debts - Billed	(282,609)	(332,685)
Allowance for Bad Debts - Unbilled	(37,179)	(42,480)
Allowance for Bad Debts - Other	(131,300)	(66,900)
Notes Rec. - Assoc. Cos.	15,162,500	10,800,000
T & D / General Materials and Supplies	9,075,927	10,330,855
Fuel Oil Stock	25,701,219	32,059,947
Other Current Assets	61,107,363	69,051,502
Unamort. Debt Expenses	8,951,787	9,492,150
Other	9,027,213	8,560,384
TOTAL ASSETS	<u>1,942,376,910</u>	<u>2,005,973,952</u>
Common Stock	85,387,140	85,387,140
Stock Premium & Expense	295,846,296	295,840,624
Retained Earnings	542,022,865	563,215,006
Pref'd Stk - Not Subj. to Mand. Red.	22,293,140	22,293,140
Promissory Note - Sp Purp Rev Bonds	448,706,944	448,835,714
Funds on Deposit - Trustee	(16,110,900)	(14,013,000)
Long-Term Debt Assoc. Cos.	63,092,800	63,092,800
Borrow. From Assoc. Cos.	28,600,000	31,500,000
Drafts & Checks Payable	23,058,638	24,244,366
Fuel Oil Payable	12,098,636	15,143,840
Trade Accounts Payable	6,436,346	10,035,011
Interest Payable	7,296,452	7,649,908
Dividends Payable	240,591	240,406
Taxes Accrued - Income	3,021,624	4,250,877
Taxes Accrued - Other	45,252,482	54,311,379
Other A/P & Accruals	20,997,427	20,750,998
Deferred Income Taxes	132,159,258	137,919,110
Investment Tax Credits	28,430,171	27,702,806
Customer Advances	1,550,218	1,436,252
Other Deferred Credits	21,889,922	20,088,307
Regulatory Liabilities, net	31,808,383	42,235,030
Contribution in aid of Construction	138,298,477	143,814,238
TOTAL CAPITAL & LIABILITIES	<u>1,942,376,910</u>	<u>2,005,973,952</u>

HAWAIIAN ELECTRIC CO., INC.
U.S. Corporation Income Tax Return
For the Year Ended 12/31/03

FEIN: 99-0040500

Officers Compensation

(a) Name of officer	(b) Social security number	(c) % of time devoted to business	% of corporation stock owned (d) Common	(e) Preferred	(f) Amount of compensation
Employee 1		Full	<.1%	0.0%	1,204,191
Employee 2		Full	<.1%	0.0%	244,869
Employee 3		Full	<.1%	0.0%	211,547
Employee 4		Full	<.1%	0.0%	306,942
Employee 5		Full	<.1%	0.0%	214,688
Employee 6		Full	<.1%	0.0%	240,281
Employee 7		Full	<.1%	0.0%	255,936
Employee 8		Full	<.1%	0.0%	183,171
Employee 9		Full	<.1%	0.0%	178,705
Employee 10		Full	<.1%	0.0%	124,755
Employee 11		Full	<.1%	0.0%	182,847
Employee 12		Full	<.1%	0.0%	313,274
Employee 13		Full	<.1%	0.0%	327,915
Employee 14		Full	<.1%	0.0%	366,895
Total:					<u>4,356,016</u>

CORPORATION INCOME TAX RETURN

FORM N-30 (REV. 2003)

Page 2

Schedule C		Income From Dividends (Classified for Hawaii Purposes)			
1 Name of declaring corporation (Attach a separate sheet if more space is needed.)		2 National Bank Associations or certain high technology businesses	3 Received from an affiliate (including foreign) as IRC section 243(b) qualifying dividend	4 Received by a Small Business Investment Co. operating under Small Business Investment Act	5 Columns 2 through 4 and all other dividends
DIVIDENDS	VARIOUS				4,125
6	Total dividends. (Subtotal of column 5)				4,125
7	Sum of columns 2 through 4				
8	Subtotal. Line 6 minus line 7				4,125
9	Multiply line 8 by .30 (30%)				1,238
10	Taxable mutual funds dividends.				
11	Total taxable dividends. Line 9 plus line 10				1,238

Schedule J		Adjustments to Income for Hawaii Purposes and Tax Computation		
1	Taxable income or loss before Hawaii adjustments from page 1, line 10 (Unitary business taxpayers, see Instructions)		1	52,418,623
ADD:				
ADJUSTMENTS				
2	(a) Taxable dividends from Schedule C, line 11	2(a)	1,238	
	(b) Deduction allowable for federal tax purposes but not allowable or allowable only in part for Hawaii tax purposes (attach schedule)	2(b)		
	(c) The portion of the Hawaii jobs credit from Schedule CR, line 5 (see Instructions)	2(c)		
	(d) Other adjustments (attach schedule) SEE STATEMENT 1	2(d)	12,808,239	
3	Total adjustments (Add lines 2(a), 2(b), 2(c) and 2(d))		3	12,809,477
4	Total of lines 1 and 3		4	65,228,100
DEDUCT:				
5	Entire dividends as reported on federal return and included on page 1, line 8	5	4,125	
6	Interest on obligations of the United States included on page 1, line 8	6		
7	Net income from sources outside Hawaii received by a foreign or domestic corporation, except for unitary business taxpayers using Form N-30, Schedules O & P	7		
8	Amortization of casualty losses where election is made to amortize for Hawaii tax purposes under section 235-7(f), HRS (attach explanation)	8		
9	Net operating loss deduction (under section 235-7(d), HRS) (attach schedule)	9		
10	Other deductions or adjustments (attach schedule)	10		
11	Total of lines 5 to 10 inclusive		11	4,125
12	Taxable income or loss for Hawaii tax purposes (line 4 minus line 11)		12	65,223,975
TAX COMPUTATION				
13	Enter the amount of net capital gains as shown on Schedule D, line 16. (Schedules O & P taxpayers, see instructions).		13	401,862
14	Line 12 minus line 13 (if less than zero, enter zero)		14	64,822,113
15	(a) Tax on capital gain, line 13 — Enter 4% of amount on line 13		15(a)	16,074
	(b) Tax on all other taxable income, line 14 — If the amount on line 14 is:			
	(i) Not over \$25,000 — Enter 4.4% of line 14	15(b)(i)	0	
	(ii) Over \$25,000 but not over \$100,000 — Enter 5.4% of line 14 \$ 0. Subtract \$250.00 and enter difference	15(b)(ii)	0	
	(iii) Over \$100,000 — Enter 6.4% of line 14 \$ 4,148,615. Subtract \$1,250.00 and enter difference	15(b)(iii)	4,147,365	
	(c) Total of lines 15(a) and 15(b)	15(c)	4,163,439	
	(d) Using the rates listed on line 15(b), compute tax on all taxable income using amount from line 12	15(d)	4,173,084	
16	Total tax (enter lesser of line 15(c) or 15(d))		16	4,163,439
17	Recapture of Capital Goods Excise Tax Credit from Form N-312, Part II		17	474

SCHEDULE CR
(REV. 2003)

STATE OF HAWAII—DEPARTMENT OF TAXATION
SCHEDULE OF TAX CREDITS

TAX YEAR
2003

Or fiscal year beginning _____, 2003, and ending _____, 20 _____

ATTACH THIS SCHEDULE DIRECTLY BEHIND FORM N-11, N-12, N-15, N-30, OR N-70NP

ATTACH THIS SCHEDULE TO FORM N-11, N-12, N-15, N-30, OR N-70NP	SSN or Federal Employer I.D. No. 99-0040500
Name(s) as shown on return HAWAIIAN ELECTRIC CO., INC.	Hawaii G.E./Use Identification No. 10002250

Part I	Nonrefundable Tax Credits		
1	Income tax paid to another state or foreign country (N-11, N-12, N-15, & N-70NP filers) . .	1•	00
2	Energy Conservation Tax Credit (attach Form N-157)	2•	00
3	Enterprise Zone Tax Credit (attach Form N-756)	3•	00
4	Low-Income Housing Tax Credit (attach Form N-586)	4•	00
5	Credit for Employment of Vocational Rehabilitation Referrals (attach Form N-884)	5•	00
6	High Technology Business Investment Tax Credit (attach Form N-318)	6•	00
7	Individual Development Account Contribution Tax Credit (attach Form N-320)	7•	00
8	Technology Infrastructure Renovation Tax Credit (attach Form N-326)	8•	00
9	Credit for School Repair and Maintenance (attach Form N-330)	9•	00
10	Hotel Construction and Remodeling Tax Credit (attach Form N-314)	10•	00
11	Residential Construction and Remodeling Tax Credit (attach Form N-332)	11•	00
12	Renewable Energy Technologies Income Tax Credit (attach Form N-334)	12•	00
13	Total Nonrefundable Credits. Add Lines 1 through 12. Enter here and on Form N-11, Line 27; N-12, Line 40; N-15, Line 42; N-30, Line 12; or N-70NP, Line 15	13•	00

Part II	Refundable Tax Credits		
14	Capital Goods Excise Tax Credit (attach Form N-312)	14•	1,470,958 00
15	Fuel Tax Credit for Commercial Fishers (attach Form N-163)	15•	00
16	Hotel Construction and Remodeling Tax Credit (attach Form N-314)	16•	00
17	Motion Picture and Film Production Income Tax Credit (attach Form N-316)	17•	00
18	Tax Credit for Research Activities (attach Form N-319)	18•	984,538 00
19	Drought Mitigating Water Storage Facility Income Tax Credit (attach Form N-328)	19•	00
20	Ethanol Investment Tax Credit (attach Form N-324)	20•	00
21	Other refundable credits		
	a. Pro rata share of taxes withheld and paid by a partnership, estate, trust, or S corporation on the sale of Hawaii real property interests . .	21a	00
	b. Credit From a Regulated Investment Company	21b	00
	c. Add lines 21a and 21b	21c•	00
22	Total Refundable Credits. Add Lines 14 through 20 and Line 21c. Enter here and on Form N-11, Line 37; N-12, Line 50; N-15, Line 52; N-30, Line 14(d); or N-70NP, Line 17(d)	22	2,455,496 00

STATE OF HAWAII — DEPARTMENT OF TAXATION

FORM N-312 (REV. 2003)	<h1 style="margin: 0;">CAPITAL GOODS EXCISE TAX CREDIT</h1> <p style="margin: 5px 0;">SEE SEPARATE INSTRUCTIONS BEFORE COMPLETING THIS FORM.</p> <p style="margin: 0;">Or fiscal year beginning _____, 20____, and ending _____, 20____</p>	2003
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ATTACH THIS SCHEDULE TO FORM F-1, N-11, N-12, N-15, N-20, N-30, N-35, N-40, OR N-70NP

SSN OR FEIN
99-0040500

Name
HAWAIIAN ELECTRIC CO., INC.

Hawaii G.E./Use Ident. Number

CAUTION: A claim for this credit, including an amended claim, must be filed on or before the end of the twelfth month following the close of the taxable year for which the credit may be claimed. An extension of time for filing a return does not extend the time for claiming the credit. The taxpayer shall treat the amount of the credit allowable and claimed as a taxable income item for the taxable year in which it is properly recognized under the method of accounting used to compute taxable income. Alternatively, the basis of eligible property for depreciation purposes for State income taxes shall be reduced by the amount of the credit allowable and claimed. **No credit may be claimed for property for which the Hotel Construction and Remodeling Tax Credit, the Motion Picture and Film Production Income Tax Credit, or the Technology Infrastructure Renovation Tax Credit is claimed.**

PART I COMPUTATION OF TAX CREDIT

(a) Description of Property — Attach a separate sheet if more space is needed	(b) Date property was placed in service	(c) Cost of qualifying property
1. Hawaii purchases		
VARIOUS	VARIOUS	36,773,949
2a. Purchases from out-of-state sellers		
2b. Was Use Tax paid on these purchases? Yes <input type="checkbox"/> No <input type="checkbox"/> Some <input checked="" type="checkbox"/>		
3. Total qualifying cost of eligible property. Add amounts in column (c), lines 1 and 2. (Estates, trusts, and cooperatives, see Instructions)	3	36,773,949
4. Tax credit percentage	4	4%
5. Multiply line 3 by line 4 and enter result here	5	1,470,958
6. Amount of sales or use taxes paid to another state or jurisdiction for which a credit was claimed under section 238-3(i), Hawaii Revised Statutes. (see Instructions)	6	
7. Capital Goods Excise Tax Credit — Line 5 minus line 6. Enter difference (> zero) rounded to the nearest dollar for individual taxpayers and enter on Form F-1, line 74 or Schedule CR, line 14	7	1,470,958

- A. Was a deduction taken under Internal Revenue Code Section 179 (regarding an election to expense certain depreciable business assets) on any property listed on lines 1 or 2a?
- B. Was any property listed on lines 1 or 2a acquired from a related company or person?
- C. Is any property listed on lines 1 or 2a subject to the limitation on capital goods excise tax credit and the depreciation deduction under Internal Revenue Code Section 179?

Yes	No
	X
	X
	✓

FORM
N-312
(REV. 2003)

PART II — RECAPTURE OF CAPITAL GOODS EXCISE TAX CREDIT

Name(s) as shown on return or of individual or entity for whom this statement is being prepared. HAWAIIAN ELECTRIC CO., INC.	FEIN or SSN 99-0040500
Name of pass-through entity.	FEIN or SSN

Properties	Description of property. (Attach a separate sheet if more space is needed.)
A	VARIOUS MACHINERY & EQUIPMENT - VINTAGE 2001
B	VARIOUS MACHINERY & EQUIPMENT - VINTAGE 2002
C	
D	
E	

RECAPTURE COMPUTATION:
(See Specific Instructions)

	Properties				
	A	B	C	D	E
1. Original rate of credit (4%)	1	4%	4%	4%	4%
2. Date recapture period begins (see Instructions)	2	VARIOUS 2001	VARIOUS 2002		
3. Date property ceased to be eligible capital goods excise tax credit property. (see Instructions)	3	VARIOUS 2003	VARIOUS 2003		
4. Number of full years between the date on line 2 and the date on line 3.	4	2	1		
5. Original apportioned cost of qualifying property. Use this amount on line a of the worksheet in the Instructions for Part II, line 9 of Form N-312.	5	990	218		
6. Original apportioned amount of the deduction allowed under IRC section 179. Use this amount on line d of the work- sheet for Part II, line 9 of Form N-312. . .	6				
7. Original apportioned sales or use tax					

STATE OF HAWAII — DEPARTMENT OF TAXATION

FORM N-319 (REV. 2002)	TAX CREDIT FOR RESEARCH ACTIVITIES Or fiscal year beginning _____, 20____, and ending _____, 20____	TAX YEAR 20 ₀₃
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ATTACH TO FORM N-11, N-12, N-15, N-20, N-30, N-35, N-40, OR, N-70NP
WHICHEVER IS APPLICABLE.

Name(s) as shown on Form N-11, N-12, N-15, N-20, N-30, N-35, N-40, or, N-70NP HAWAIIAN ELECTRIC CO., INC.	SSN or FEIN 99-0040500
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NOTE: If you are only claiming the tax credit from a flow-through entity, start on line 6.

1 Recompute the amount of your total current year tax credit from federal Form 6765 (see instructions)	1	984,538
2 Enter the amount of your total qualified research expenses conducted within Hawaii	2	4,922,690
3 Enter the amount of your total qualified research expenses from federal Form 6765 (see instructions)	3	4,922,690
4 Ratio of qualified research expenses attributable to Hawaii. Divide line 2 by line 3.	4	1.000000
5 Tentative tax credit for research activities. Multiply line 1 by line 4.	5	984,538
6 Flow through of Hawaii tax credit for research activities received from other entities, if any. <i>Check box below.</i> Name and Federal Employer I.D. No. of Entity:		
<input type="checkbox"/> a S corporation shareholder — enter total from Schedule K-1 (Form N-35), line 12]		
<input type="checkbox"/> b Partner — enter amount from Schedule K-1 (Form N-20), line 20		
<input type="checkbox"/> c Beneficiary — enter amount from Schedule K-1 (Form N-40), line 8d		
<input type="checkbox"/> d Patron — enter the amount from federal Form 1099-PATR	6	
7 Total credit allowed — Add lines 5 and 6. Enter the result, rounded to the nearest dollar for individual taxpayers, on the appropriate line of Form N-20; Form N-35; Form N-40; or Schedule CR; whichever is applicable	7	984,538

GENERAL INSTRUCTIONS

Hawaii law conforms to Section 41 (with respect to the credit for increasing research activities) and section 280C(c) (with respect to certain expenses for which the credit for increasing research activities are allowable) of the Internal Revenue Code except that:

- (1) references to the base amount shall not apply and credit for all qualified research expenses may be taken without regard to the amount of expenses for previous years.
- (2) "Qualified Research" and "Basic Research" shall not include research conducted outside of Hawaii.
- (3) The Hawaii credit is **refundable** and available for tax years 2000 - 2005 even if the federal credit is repealed during this period.

Internet Address

Additional information regarding Hawaii tax laws and tax forms can be found on the Department of Taxation's website at:

www.state.hi.us/tax.

Deadline for claiming the credit

Claims for the credit, including any amended claims, **must** be filed on or before the end of the twelfth month after the close of your taxable year. Failure to properly claim the credit shall constitute a waiver of the right to claim the credit.

SPECIFIC INSTRUCTIONS

Enter your tax year in the space provided.

Line 1. — Recompute the amount of the "Total Current Year Credit" calculated on federal Form 6765, line 41. If you computed the federal credit under section A of Form 6765, multiply "basic research payments paid or

incurred to qualified organizations" (line 1) plus the "total qualified research expenses" (line 8) by 20%. If you are electing the reduced credit under section 280C, multiply by 13%. Enter the result here.

If you computed the federal credit under section B of Form 6765, multiply "basic research payments paid or incurred to qualified organizations" (line 17) plus the "total qualified research expenses" (line 25) by 20%. If you are electing the reduced credit under section 280C, multiply the result by 65%. Enter the result here.

Line 2. — Enter the total amount of the qualified research expenses for research conducted in Hawaii.

Line 3. — Enter the amount of the total qualified research expenses as calculated on the federal Form 6765, excluding any "qualified organization base period amount."

Line 4. — Divide line 2 by line 3. Enter the result here rounded to six decimal places. This is the percentage of the qualified research expenses for research conducted in Hawaii.

Line 5. — Multiply line 1 by line 4. Enter the result here. This is your tentative credit for research activities conducted in Hawaii.

Line 6. — Enter the name and federal employer identification number of any flow-through entity who has passed the tax credit for research activities through to the taxpayer. If additional space is needed, include the information on an attached schedule.

Line 7. — Add lines 5 and 6. This is your total tax credit for research activities allowed for this taxable year. Enter the amount here, rounded to the nearest dollar for individual taxpayers, and on the appropriate line of Form N-20; Form N-35; Form N-40; or Schedule CR; whichever is applicable.

HAWAIIAN ELECTRIC CO., INC.
State of Hawaii Corporation Income Tax Return
For Year Ended 12/31/03

EIN: 99-0040500
GET: 10002250

Schedule J Adjustments to Income
for Hawaii Purposes

Line	Description	
2(d)	<u>Other adjustments</u>	
	Federal/State Depreciation Difference	11,983,871
	State Income Tax Adjustment	824,368
	Other adjustments	
	TOTAL Other Adjustments	<u>12,808,239</u>

CA-IR-11

Please provide a complete copy of benefit documentation associated with each existing employee health, welfare or retirement plan in the form currently provided to employees to advise them of such benefits.

HECO Response:

The information is voluminous and therefore one copy each will be provided to the Consumer

Advocate and the Commission under separate transmittal.

CA-IR-12

- a. Has the Company initiated any individually significant efficiency or cost reduction programs since January 1, 2002?
- b. If affirmative, please identify and describe each such program and provide copies of all reports analyses, projections, workpapers and other documentation related to same.

HECO Response:

a. "Programs" initiated and/or improved on or after 1/1/02:

witnesses and listed in subpart (b). In addition, in response to the impacts of the events of

effective in identifying cold pressurized problems before they result in injury and/or unit forced outages. While this program does not impact cost reduction it impacts cost avoidance (potential Workers' Comp Claims) and improves system reliability by proactively resolving risks associated with cold pressurized lines.

Program descriptions and reports documenting the status of the program are attached. Attachment 1 is a PowerPoint presentation to all employees in the Production Department that explains the problem, plans for resolution, and status as of the date of the presentation. Attachment 2 is the overall status report on all units, and Attachment 3 contains the individual unit findings.

2. Predictive Maintenance Program - As discussed in HECO T-6, page 15, predictive maintenance (PDM) is a best practice intended to identify select equipment problems before they result in breakdown using a variety of instrument technologies. The primary objective is to reduce unexpected breakdowns of critical equipment that result in more expensive corrective maintenance cost, extended unit deratings or forced outages, increased environmental and safety compliance risks, and potential damage.

3. Process Book Applications - As discussed in HECO T-6, page 17, HECO continues to improve on its application of existing technologies to manage generating unit reliability, efficiency, compliance and safety. Process Book is a client based software used to view real time process data from workstations in the control rooms and desktop computers for HECO's engineers. Processbook has improved situational awareness of HECO's
-

personnel in the event of a system disturbance by providing information of unit status and system frequency. Knowing the decay of system frequency and seeing which unit had tripped has enabled HECO personnel to quickly respond to emergency situations to maintain system reliability. Operators, for instance, will turn on additional auxiliary equipment and increase excess air to facilitate quick load pickup. Processbook also provides the capability by HECO subject matter experts to troubleshoot unit problems quickly from remote (off-site) locations. For example this technology allows subject matter experts situated at Waiau to work on a problem at Kahe. A specific example illustrating this capability was a failure of a fuel flow transmitter on Kahe 1 in 2003. HECO personnel at Waiau noticed an unusual decay in fuel flow while the unit operated at constant load. The control operator at Kahe 1 was immediately alerted and maintenance personnel were dispatched to troubleshoot the problem. Just minutes later the transmitter failed. Having this prior knowledge, the control operator was able to quickly stabilize the unit and prevent a forced outage and possible emissions excursion. HECO is also using Processbook to monitor emissions to ensure environmental compliance. Opacity is monitored and 6 minute averages are calculated using Excel. Other applications include monitoring fuel consumption and providing a real-time tool to train new HECO personnel.

4. Implementation of new technologies and testing techniques, and application of special techniques and process - see responses to CA-IR-439 and CA-IR-611.
5. System and Equipment Reliability Prioritization (SERP) pilot and Development of System Criticality Rankings (SCR) for Substations and Circuits – see response to CA-IR-56.
6. Substation Predictive Maintenance (PdM) pilot, and Implementation of PdM organization in Substation – see response to CA-IR-56.
7. Maintenance Basis training by EPRI Solutions – see response to CA-IR-56.
8. Helicopter Borne – Airborne Inspection System (AIS), Infrared (IR), and Corona Inspections – see response to CA-IR-56.
9. Amendment No. 17 to the Ellipse Software License Agreement – see HECO T-16, pages 14–15.
10. Integrated Absence Management Program – See HECO T-15, pages 20-21.

In addition, while the temporary cost reduction efforts referred to in subpart (a) would not be characterized as a “program”, see pages 5 through 27 for copies of communications regarding spending guidelines. The Company objects to providing the list of specific adjustments that were made for 2003 on the grounds that are Company Confidential and prepared for Executive Review purposes only, and can be taken out of context without the proper perspective and understanding of the facts and circumstances under which these adjustments were proposed. The Company, however, will provide the list of adjustments on pages 11 to 20 pursuant to an appropriate protective order.

INTEROFFICE
CORRESPONDENCE



Hawaiian Electric Co., Inc.

August 19, 2002

To: Vice Presidents, Managers & Direct Reports
From: T. Michael May *Mike*
Subject: Training / Membership Guidelines for the
Remainder of 2002

Because of the economic challenges the Company faced after the September 11 attack last year, employee training and corporate memberships were curtailed. Until now, training and memberships have been limited to only what could be considered "critical and essential," primarily related to statutory compliance.

The restrictions were meant to be temporary, to be reassessed throughout 2002 depending on our financial situation. In light of our current financial situation, the Company has determined that additional training and memberships may be allowed for the remainder of the year, under the following guidelines:

- **Business Important Training for the Remainder of 2002**

Employees may participate in training that is important to the Company's business (e.g., technical training, supervisory, leadership and developmental plan training, training that assists the Company in meeting competition, training that improves customer relations, communications skills training related to corporate strategic projects, or similar training), especially if training can be done locally for groups of employees (versus out-of-town courses attended by a lone employee).

- **Procedures for training requests for the Remainder of 2002**

The HECO budget for the training described above is \$104,000. The respective process area executive must first review all such training requests. The process area executive in turn should fill out the attached form (one form per process area) by **September 20, 2002**. Executives will review the training requests at a subsequent executive staff meeting and prioritize the training requests to meet the above budget guidelines. All approved training requests are to be paid by the sponsoring departments.

MEMO TO: Vice Presidents, Managers & Direct Reports
August 19, 2002
Page 2

▪ **Business Important Memberships for the Remainder of 2002**

The Company may subsidize employee memberships in organizations important to the Company's business (e.g., professional licensing fees important to the employee's current job, memberships beneficial to the Company, memberships that provide important networking, professional development and industry contacts, or similar memberships).

▪ **Procedures for membership requests for the Remainder of 2002**

The HECO budget for the memberships described above is \$15,000. All such memberships requests should comply with the membership guidelines in the General Information Manual (which can also be found on the Intranet under Cafe Best Policies and Procedures). The Application for Company Sponsored Membership form (also available at the Intranet site) should be submitted to the Department Manager, respective process area executive, and Vice President of Corporate Excellence for approval. All approved memberships under these guidelines are to be paid by the employee's respective department. Please note that the Company will only provide reimbursement

Business Critical Training

[illegible]

*Training

In addition to the critical and essential training that has been allowed to date, training that is important to the Company's business will be allowed:

- **Supervisory, leadership and developmental plan training,**
- Training that assists the Company in meeting **competition,**
- Training that improves **customer relations,** and
- **Communications** skills training related to corporate strategic projects
(e.g., Witness testimony, Neighborhood Board/Government Agency presentations)

Training done locally for groups of employees should be given preference over out-of-town courses attended by a single employee.

INTEROFFICE CORRESPONDENCE

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Hawaiian Electric Co., Inc.

December 13, 2002

To: Officers
Direct Reports to Officers

Subject: Budget Recycle: 2003 Operating Budget

Thank you for your flexibility, contributions and support of this year's budgeting effort. The review process has been completed and a number of Company-wide and specific changes have been identified and will need to be reflected in your respective pillar files. Listed below are Company-wide budgeting and spending guidelines for certain cost items for 2003. For all other O&M changes please see your vice president for guidelines for revising your 2003 budget. For Capital Budget revisions, Gail Chinen will contact you.

Company-wide Budgeting and Spending Guidelines:

- **Business Critical Mainland Travel and Training**
Only Critical and Essential Travel and Training will be allowed. Training critical to meet legal compliance such as Safety and Environmental are examples of critical and essential training. All other company-provided training, including executive development, in-house and technical training will be suspended for 2003.
- **Business Important Meals and Entertainment**
Only Meals and Entertainment that is important to the Company's business will be allowed. Process areas are to manage these costs in a fiscally sound/cost containment manner.
- **Job Required Employee Memberships & Licenses**
Only employee memberships that are required for a position such as license to stamp drawings or to represent the Company in a legal capacity will be allowed.
- **Office Supplies**
Reduce current (Hopaco, Fisher, etc.) budget by 20%

The following schedule has been developed for the recycle:

Dec 12	Pillar file distribution: Pillar Administrator distributes Pillar files to Department folders
Dec 20	Complete revised 2003 estimates:
Noon	Users complete 2003 estimates Users place copy of completed files in the appropriate folder on the O: drive

Please distribute this memo and attachments as appropriate. Should you have any questions, please call

INTEROFFICE CORRESPONDENCE


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Hawaiian Electric Co., Inc.

April 4, 2003

To: Sr. Vice Presidents
Vice Presidents
Subsidiary Presidents
Managers and Direct Reports

From: Mike May 

Subject: Budget Challenges

As the events of the past several weeks have shown, we are faced with challenging times. Our Company must implement additional budget constraints at this time due to the commencement of war in Iraq, anticipated lower kwh sales resulting from fewer visitor arrivals and a less-than-robust economy, additional security costs, and unfavorable variations from our financial forecast for the first two months of this year. **We must also be prepared should the Iraq situation create even further impacts.**

Accordingly, I am asking your help once again with the increasingly difficult task of keeping costs down. Rick von Gnechten will shortly be giving each of you adjusted budget targets for 2003 required to meet our financial obligations to the Board and our shareholders. These targets will reflect (1) the agreed upon reductions from last year's forecasting process that had not yet been allocated to each Vice President and (2) an estimated additional reduction to reflect the probable impact of the war with Iraq. I am counting on you to use your best managerial judgment in adjusting programs, projects and expenses in your respective areas to help meet these financial targets to maintain our financial integrity and insure we continue to fulfill our fundamental mission. We will be monitoring key economic indicators on a weekly basis to track the impact of the war on our sales and the need to make additional changes.

I am asking everyone throughout the Company to abide by the following guidelines for the immediate future:

1. **Construction of new HECO facilities, renovations or relocations other than "box" moves, i.e. items being moved that can fit in boxes,** requires Presidential approval. (Minor work station adjustments relating to ergonomics, safety and/or health are permitted with the Safety Division's recommendation.)
2. **Hiring at HECO (including filling regular positions; requisitions and extensions of temporary or part-time employees, agency contractors or independent contractors; line of progression promotions; and requisitions and extensions of outside contractors)** requires approval by the Staffing Committee, which is comprised

MEMO to: Sr. VPs, VPs, Subsidiary Presidents, Managers and Direct Reports
April 4, 2003
Page 2

of the Senior Vice Presidents, the Financial VP, General Counsel VP, and Corporate Excellence VP. All JVRs previously approved, regardless of whether the hiring process has begun, must be resubmitted for approval by the Staffing Committee. This also means that all discretionary promotions, position upgrades and management transfers must be approved by the Staffing Committee.

3. **Out-of-state business travel, regardless of the source of funding, requires Presidential approval.**
4. **Licenses required for the employee to do his or her job** are the only individual memberships that will be paid for by the Company.
5. **Training (including conference fees, breakfast briefings and similar events) paid for by the Company** requires executive approval. Only critical and essential training (such as compliance-mandated safety and environmental training) should be allowed.
6. **Entertainment costs (including food and recreation) paid for by the Company** requires Presidential approval.

All entertainment expenses must be reviewed to ensure that they meet the following criteria:

- Are the expenses critical to the maintenance of relationships with our top customers, including trade groups and associations that are comprised of or impact our customers? Can the relationship be maintained without incurring the expense?
- Are the expenses a critical part of a defined strategy in dealing with the major issues, projects, and relationships with the community?

Please keep in mind that as we limit our expenses, those that we do make become much more visible. A level of heightened scrutiny will be imposed on expenses and your actions need to reflect a sense of fairness and appreciation of our situation as well as the substantive criteria listed above.

Finally, please be aware that if you incur out-of-pocket expenses that do not meet the above criteria, your request for reimbursement will generally be denied. In addition, it may not be practical to grant approval in advance. Therefore, please be certain that your out-of-pocket expenses meet the above criteria, unless you are prepared to pay for any expenses incurred yourself.

If you have any questions about these guidelines, please contact your respective executive.

Thanks for your support and commitment. It is through this dedicated teamwork that HECO has so far been able to avoid much of the disruption and anxiety faced by other companies in our community. Your leadership during these challenging times is much appreciated.

Pages 11 to 20 contain confidential financial company information and will be provided to the Consumer Advocate, Department of Defense and the Commission under protective order once a protective order is issued in this docket.

INTEROFFICE CORRESPONDENCE



Hawaiian Electric Co., Inc.

March 18, 2004

To: Senior Vice Presidents
Vice Presidents
Subsidiary Presidents
Managers and Direct Reports

From: Mike May

A handwritten signature in black ink, appearing to read "Mike May", is written over the printed name.

Subject: EMPLOYEE EXPENSE AND STAFFING GUIDELINES FOR 2004

Thank you for your cooperation and leadership in continuing to manage our discretionary costs. While the economic outlook for 2004 appears somewhat brighter, national and international economic uncertainty remains. Thus, we must continue to proceed with care into the immediate future and invest wisely in our people and facilities towards our roadmap to the future. Recognizing the need to balance costs, operations, and reliability, and in the spirit of continuous improvement, the following guidelines will apply for 2004. These guidelines are intended to provide greater flexibility while remaining prudently cautious. They apply to HECO, HELCO, and MECO.

1. COMPANY-SPONSORED MEMBERSHIPS

Corporate and individual memberships in professional associations and civic/charitable organizations may be sponsored when membership is deemed to be business important. Corporate memberships require the approval of the Financial VP and the HECO CEO. Individual memberships must be approved by the Process Area VP or, in the case of HELCO and MECO, Company President. Direct reports to the HECO CEO (including Senior VPs and HELCO and MECO Presidents) need HECO CEO approval. Corporate Excellence VP concurrence is also required to ensure consistent application and to review costs from a corporate perspective.

2. EXTERNAL TRAINING AND DEVELOPMENT

Process Area VPs or HELCO and MECO Presidents may approve employee attendance at programs, seminars, or workshops given in the community that offer instruction in improving job-related and developmental skills and competencies as deemed business important and budgeted.

The Voluntary Educational Assistance Program is reinstated effective January 1, 2004. The VEA program policy is in the Employee Development Section of the General

Information Manual, <http://intranet/humanresources/manuals/qim/qim11-7.htm#Introduction>. Completed applications must be received at least five (5) working days before the course begins, but no earlier than three (3) months.

When mainland travel is involved, HECO VPs need approval from the Senior VP committee; direct reports to the HECO CEO (including Senior VPs and HELCO and MECO Presidents) need HECO CEO approval.

3. ENTERTAINMENT EXPENSES

Entertainment expenses (including food and recreation) paid for by the Company must be business important in nature and requires VP or President approval with a duplicate copy given to the Financial VP to ensure consistency. A pre-approval list will be

5. STAFFING GUIDELINES

A. Replacements or downgrades due to retirements, termination, or transfer - Approved at Process Area VP level or by HELCO or MECO President

Where a regular position will be vacated, departments may proceed in filling the position with a replacement provided the following conditions are met:

- More cost-effective or efficient alternatives, e.g. redistributing the work, sharing support resources, or eliminating "nice," but non-essential parts of work, are not available or feasible.
 - This provision recognizes that job demands change, and it is sometimes

Thus, there may be two employees in the same position, but they will count as one.

- Workforce Staffing & Development and the Compensation Division have reviewed the proposed action (applies to all three companies).
- The independent contractor satisfies the tests for independent contractor status. Workforce Staffing & Development and Legal Department consultation is required. See guidelines under GIM policy 3-10, "Contract Employees and Independent Contractors," <http://iprodiis/humanresources/manuals/gim/gim3-10.htm>. When an independent contractor is retained for more than a year, an annual review, through Legal, is required to ensure the independent contractor status is maintained. Departments are responsible for coordinating this annual review prior to expiration of the twelve (12) months.
- The independent contractor, agency temp, or HECO temp is not a former employee*.
- The temporary period does not exceed three (3) months*.

***IMPORTANT NOTE:** If either of these last two conditions is not met, **Staffing Committee** approval is required to ensure that HECO does not violate any employment or pension law or the collective bargaining agreement.

C. Staffing Committee Approval Required for Upgraded, New, or Unbudgeted Additional Positions

In addition to receiving (1) Process Area VP or Company President approval, and (2) Workforce Staffing & Development and Compensation Division review for merit positions or Industrial Relations review for BU positions, Staffing Committee approval is also required before any action is taken to fill a position falling in this category. The request should be forwarded to the Corporate Excellence VP.

The Staffing Committee, established in 2002, is comprised of all Senior VPs, the Financial VP, General Counsel VP, and Corporate Excellence VP (and HELCO and MECO Presidents, as appropriate). The purpose of the committee is to review the request taking into consideration the impact of adding a long-term financial obligation to the Company's operating costs. The Staffing Committee is authorized to reallocate staffing across process areas and may also agree that certain services or projects may be delayed, curtailed, or eliminated in order to manage overall company staffing.

Definitions follow:

- **Upgrade:** Position exists but has been redesigned and results in an upward change in role or market rate.
- **New:** Position does not currently exist. Usually involves additional costs for office space and equipment.

- Addition: Position exists; increase to the number of people holding that position. Usually involves additional costs for office space and equipment.

D. Rehiring Retirees of HECO, HELCO, or MECO require Staffing Committee approval

There are significant consequences to both the Company and all individuals covered under our pension plan should a retiree improperly return to work for any of the companies covered by our pension plan. Therefore, in addition to receiving (1) Process Area VP or Company President approval and (2) Workforce Staffing & Development and Compensation Division review, Staffing Committee approval is required.

Re-employment of a retiree in any capacity (regular, agency or HECO temp, contract employee) is subject to the following conditions:

- The pension benefit will be suspended for each month in which the retiree works eight (8) or more days.
- There has been a termination of at least six (6) months prior to the re-employment.

Retirees who are independent contractors must meet the tests for independent contractor status. In addition, there must have been a termination of at least six (6) months prior to the re-employment.

- Workforce Staffing & Development and Legal Department consultation is required. See guidelines under GIM policy 3-10, "Contract Employees and Independent Contractors," <http://iprodiis/humanresources/manuals/qim/qim3-10.htm>. When an independent contractor is retained for more than twelve (12) months, an annual review, through Legal, is required to ensure the independent contractor status is maintained. Departments are responsible for coordinating this annual review prior to expiration of the twelve (12) months.
- The request should be forwarded to the Corporate Excellence VP.

Note: Retirees who work for HECO through another company, e.g., subcontractors, must be reported to Workforce Staffing & Development to insure that employment and pension laws are not violated.

E. Summer Interns and Summer Hires

Economic conditions allowing, we anticipate that these two programs may be reinstated this year. Departments will be responsible for covering labor costs within their budgets, but Summer Interns and Summer Hires will NOT be counted against a department's staffing guideline.

Procedures for these programs are currently under development. General descriptions follow.

Summer Interns

College students attending leading universities throughout the United States are recruited to perform challenging professional-level assignments at HECO during the summer months. Students considered are those that meet educational criteria and show high potential as future hires. Demonstrated experience and familiarity with local customs and practices is given strong consideration. Workforce Staffing & Development works with departments to match candidates with proposed projects.

Summer Hires

Students not selected for the internship program may be considered for the Student Summer Hire program. High school students or former participants in HECO's School-to-Work program may also be considered for summer hire positions. These students provide backup for HECO's clerical staff during the summer and may be assigned other work if they have the appropriate qualifications. Such employment is directed by Workforce Staffing & Development with respective departments sponsoring individual student summer hires.

F. Other General Guidelines

Departments are encouraged to consider internal candidates before external candidates when possible. Enabling employees to competitively apply and be selected for positions encourages career ownership and is good for morale. To that end, positions in the Teacher/Coach and Implementor roles will be posted in accordance with our policy on job postings.

Exception: No posting is required for Management Transfers for the purpose of shifting resources to meet operational needs. Essentially, this involves moving an employee to a similar job in a different department or division AND the employee's original position is eliminated or left vacant. These transfers require only (1) Process Area VP or Company President approval, and (2) Workforce Staffing & Development and Compensation Division review for merit employees or Industrial Relations review for bargaining unit employees.

Once approval at the appropriate level has been received, electronic JVRs should be forwarded to Workforce Staffing & Development or the respective company's Human Resources office in accordance with current practice.

HECO's responsibility for equal employment opportunity and its commitment to take affirmative action are demonstrated through the personnel actions listed above.

2004 COMPENSATION GUIDELINES FOR MERIT POSITIONS

Our current merit compensation philosophy bases salary levels/ranges squarely on market rates. These market rates, which identify pay levels, are determined for each of our merit positions by comparing HECO jobs to benchmark positions in general industry or the utility sector.

As turnover, i.e. promotions, transfers, retirements, separations, etc., takes place, it is important that departments work with Workforce Staffing & Development, MECO HR, or HELCO HR who will, in turn, work with the Compensation Division to verify the existing market rate is still accurate before proceeding to recruit for the position. If the benchmark data shows salary levels for the vacant position have changed, a new market rate will be assigned immediately.

Special Project Labor Pay

Requests for special project labor pay for merit exempt employees must be approved by the respective VP or subsidiary President, with the concurrence of the Corporate Excellence VP in advance of qualifying work being completed. (See General Information Manual 9-7).

Need Additional Information

For further clarification of this policy, please contact the following areas:

- **Compensation** (for merit compensation questions)
- **Workforce Staffing & Development** (for merit employees)
- **Industrial Relations** (for bargaining unit employees)

Cold/Pressurized Line Inspection Program

A Joint Effort By Power Supply
Planning, O&M and Technical Services
Departments

(Presentation dated: 06/12/03)

What are Cold/Pressurized Lines?

Definition:

- Any Line Pressurized to Feedwater or Boiler Pressure but Remain at Ambient Temperature due to no flow.

➤ Examples:

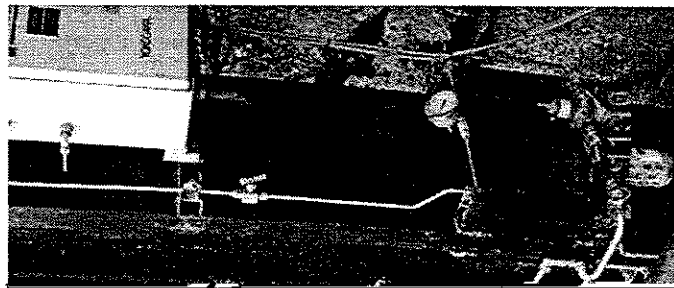
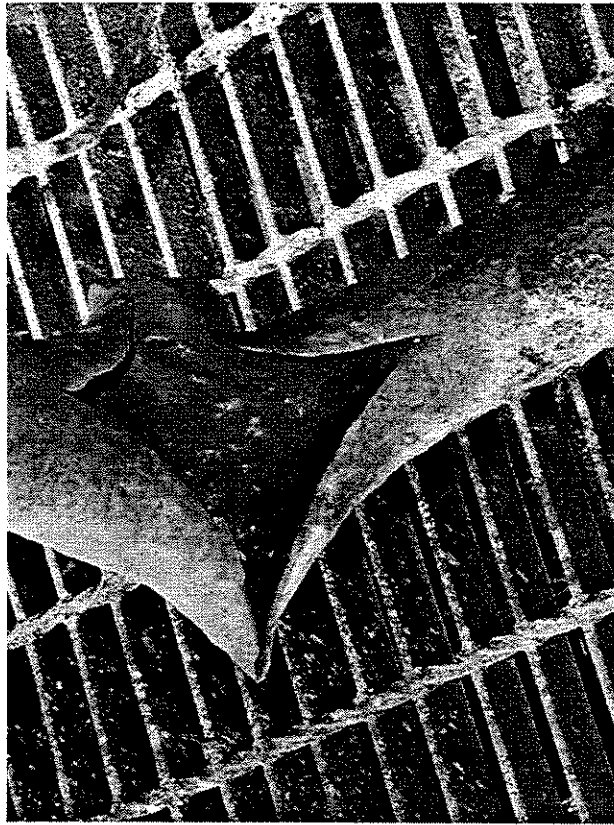
- ✓ Economizer Recirculation & Drain Lines
- ✓ PSH/SSH/RSH Drain Lines
- ✓ Blowdown Lines
- ✓ Vents, etc.

Why was Program Started?

K3 Economizer Recirculation Line Failure

- Date: June 18, 2002
- Catastrophic Fishmouth Blowout
- No Injuries, but Close-call
- Asbestos Contamination & Clean-up
- Repeat Failure Type (K4 – 1977)

Economizer Line lure (6/18/02)



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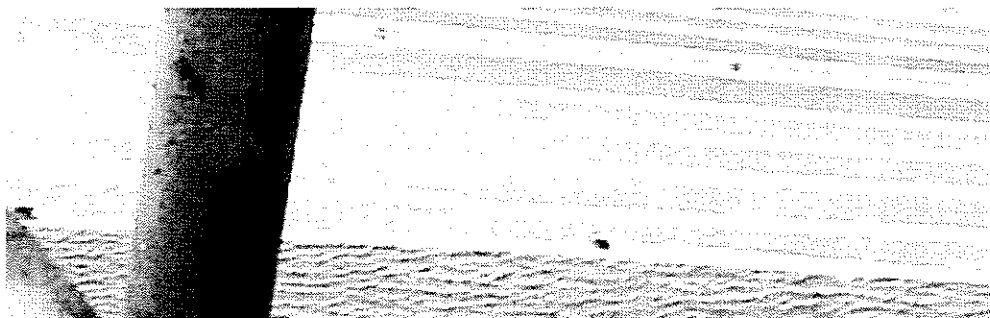
The Investigation - What Happened?

- Failure Mechanism – External Corrosion
- Root Cause – Moisture (rain) penetration beneath insulation combined with exposure to salt air and sulfur, caused accelerated corrosion of the external surfaces of the pipe, leading to failure.

Program Steps

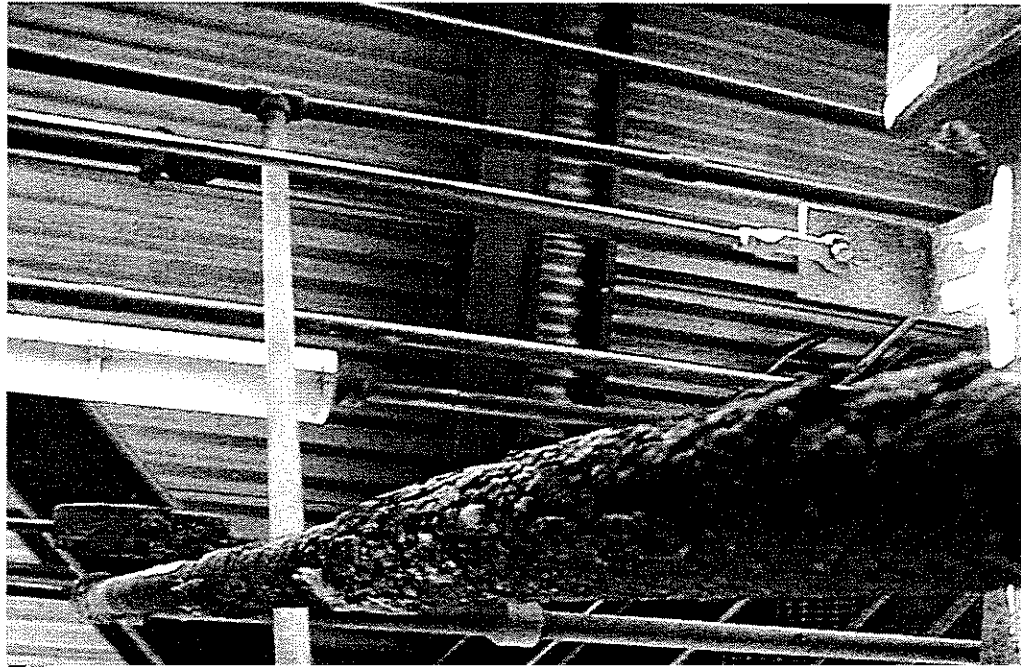
- Identity similar areas prone to same failure mode on each of the 14 HECO Boilers
 - ✓ Review completed August 2002
 - ✓ Identified 187 areas worthy of further investigation
- Strip Insulation and perform visual & UT Inspections
- Repair pipelines, leave lines bare, reinsulate in some cases or add wire cage for personnel protection

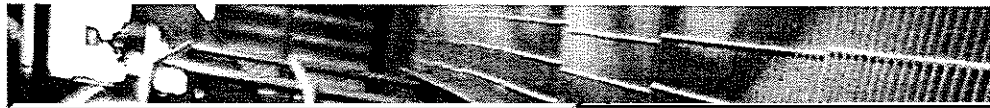
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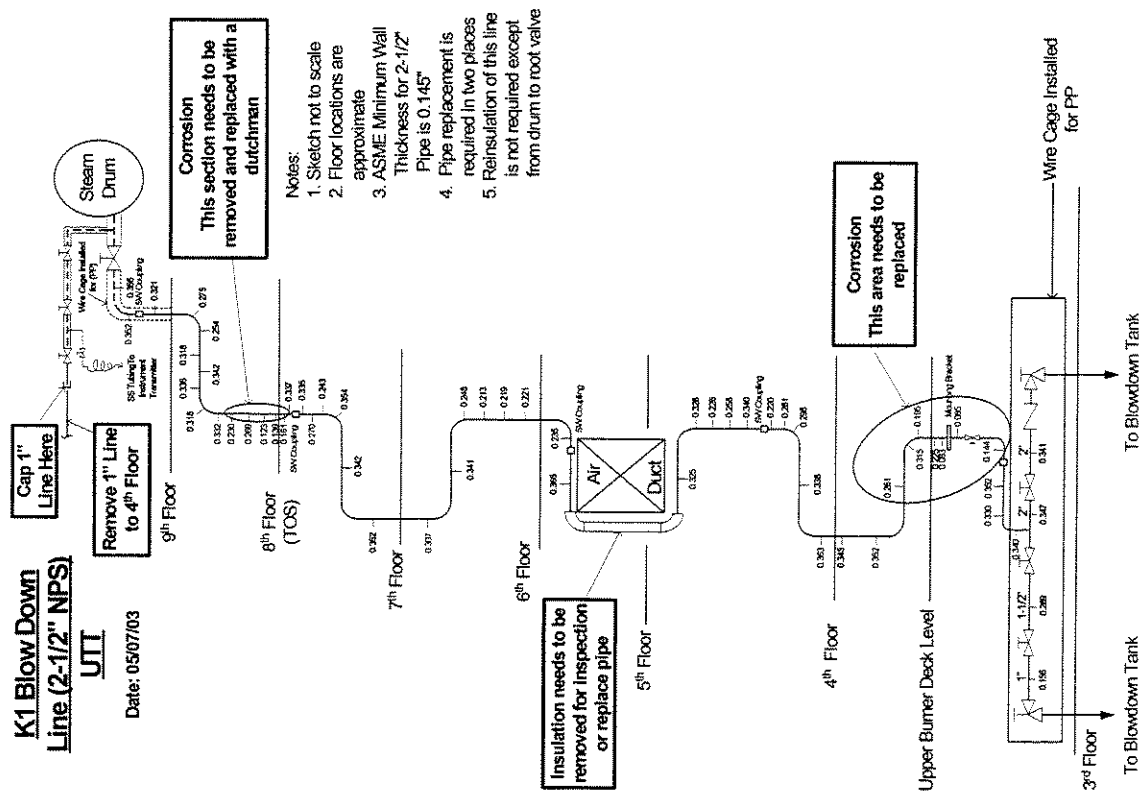


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Typical UT Line Sketch



Where We Are Now

(as of June 2003)

- To Date, K5, W3, W4, W5 and H9 inspections and repairs are complete.
- K1, K2, K3, K4, W7, W8, K6 and H8 are partially completed.
- Need to start on W6
- Still a long way to go!

Program Effects

- To Have a positive impact on:
 - ✓ Personnel Protection
 - ✓ Safety Goals
 - ✓ Protection of the Environment
 - ✓ Production & Availability
 - ✓ Employee Morale

Hawaiian Electric Company, Inc.
Rate Case - Test Year 2005

COLD/PRESSURIZED LINE INSPECTION STATUS AS of 02/11/2005

Unit	No. of Items Identified for Inspection	UTT & Visual Inspections Completed	% UTT & Visual Inspections Completed	Items Needing Piping Repair/Replacement	Piping Repair/Replacement Completed	% Total No. of Repair/Replacement Items Completed	No. of Inspection Items Totally Completed	% Inspection Items Totally Completed
H8	2	2	100%	1	1	100%	2	100%
H9	2	2	100%	0	0	100%	2	100%
K1	25	25	100%	7	1	14%	11	44%
K2	22	22	100%	5	0	0%	2	9%
K3	22	22	100%	6	5	83%	20	91%
K4	32	32	100%	10	9	90%	31	97%
K5	9	9	100%	1	1	100%	8	89%
K6	8	8	100%	0	0	100%	6	75%
W3	0	0	100%	0	0	100%	n/a	100%
W4	0	0	100%	0	0	100%	n/a	100%
W5	13	13	100%	4	4	100%	13	100%
W6	13	2	15%	Undetermined	Undetermined	#VALUE!	2	15%
W7	21	21	100%	4	4	100%	16	76%
W8	22	22	100%	9	2	22%	13	59%
Totals	191	180	94%	47	27	57%	126	66%

Hawaiian Electric Company, Inc.
Rate Case - Test Year 2005

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
Honolulu 8							
1	Main Steam Vent	Top of boiler	9 th Floor	Yes	Remove pads from root valve to ceiling. 6/26/2003 - UTT showed no defects.	6/26/03 - No repairs or replacements required.	Completed 6/26/2003
2	SSH Inlet Vent	Top of boiler	9 th Floor	Yes	Remove insul under 9 th floor deck to sec valve. 6/23/2003 - UTT's vent line and found short nipple btwn the two isolation valves to be thin.	6/23/03 - Change short nipple between the two isolation valves.	Compled during main overhaul. Checked on 7/3/2003 This item is completed.
Honolulu 9							
1	Main Steam Vent	Top of boiler	9 th Floor	Yes	Remove pads from root valve to ceiling (Note: roof seal leaks)	No repairs to piping required. Leave vents uninsulated. Fix roof seal	Lines inpected and cleared on March 7, 2003. Ron Young Sr. to check how to fix roof.
2	SSH Inlet Vent	Top of boiler	9 th Floor	Yes	Remove pads below 9 th floor deck to secondary valve	No repairs to piping required. Leave vents uninsulated. Fix roof seal	Lines inpected and cleared on March 7, 2003. Ron Young Sr. to check how to fix roof.
Kahe 1							
1	SSH Vent	B 9 th Floor	2 on 9 th	Yes	Remove from below RoVa and secondary valve and vertical vent	5/19/03 - Vent piping below secondary valves in good shape. Piping above the secondary valves thinned but ok as-is as vents to atmosphere. To of calsil insulation below primary iso valve needs to be waterproofed. 9/10/2003 - Insulation checked. 10/10/2003 - Insulation checked.	

Unit Cold\Pressurized Inspection List

No.	Description	Loc.	<u>Loc. Of</u> Root Valve	<u>Isolat</u> able	<u>Instr. for Insul. Removal</u> (Mrkd with Red Paint)	Required Repairs	Date of Completion
3	Drum Vents	L/R 9 th Floor	@Drum	Yes	Isolation valves and vertical vents	2/7/03 - R/L vents & valves ok. Seal exposed ends of insulation below root valve and X-over line on left side drum vent. Root valves and lines to remain uninsulated. 5/19/03 - Ewa side vent is insulated up to the primary iso valve and on the take-off to the sight gauge. Leave insulation as-is. On Waianae side, vent needs to be reinsulated up to primary iso valve with calsil, metal cover and sealed ends. No other work required. 9/10/2003 - Inspected and found item completed	Checked on 9/10/2003 - this item is completed
4	Blowdown	R 9 th Floor	9 th Floor	If no BD Rqd	Remove all patches from 9 th to 3 rd	5/8/2003 - One UTT reading at 8th floor and two readings at support bracket at Upper Burner level are below ASME mininum wall thickness. Do not leave line pressurized when not in use. Tag root valve @ drum closed and secondary valve @ 3rd deck open. When blowdown required, use root valve. 5/19/03 - Portions of line between the 8th & 9th floor and between 3rd & 4th floor need replacement. At 9th floor a 1' take-off need to be capped beyond 3rd iso valve and line removed to 4th floor. Reinsulation not required except from drum to root valve. Wire cages already	

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
7	PSH Inlet Hdr Drain	F/R 7 th Floor	7 th Floor	Yes	Short portion @ 7 th and all patches down to 3 rd	05/08/03 - One UTT reading below 5th floor, two between 4th and upper burner deck and one at 3rd floor at secondary iso valve below ASME minimum wall thickness. Do not leave line pressurized when not in use. Tag root valve on 7th closed and secondary iso on 3rd open. If PSH inlet header needs to be drained, do it from the root valve. 5/19/03 - Portions of line below 5th floor and between 3rd and 4th floors and at the 3rd floor secondary iso valve need replacement. Reinsulation with calsil, metal cover and sealed ends required only on short section from header to railing on 5th floor required. No other reinsulation required. 9/10/2003 - Insulation on 7th floor completed. 9/10/03 - Inspected for progress...no change. 10/21/04 - Inspected for progress. Found the insulation applied earlier is shot already. Need to install insulating pad on S1 valve and redo elbow to railing using Calcil w/ weather proof metal covering. No other changes.	
8	SSH Attemp Spray Line	B/R 7 th Floor	7 th Floor	No	Remove insulation on RoVa @ 7 th and all patches to 3rd	9/10/2003 - Line UTT's. OK. Insulation need to the restored. 10/21/04 - Inspected for progress....No change!	
9	PSH Outlet Hdr Drain	B/R 7 th Floor	7 th Floor	Yes	Remove insulation @6 th floor to 3 rd floor valve. Note; line joins w/ CRH drain below 6 th Floor	05/23/03 - There is considerable thinning at the 3rd floor. This line should not be left pressurized when not in use. The root valve on the 7th floor should be tagged closed and the secondary iso valve on the 3rd floor tagged open. The only time the root valve should be opened is to facilitate draining the header. 05/30/03 - Two sections of this line needs to be replaced;	

Unit Cold\Pressurized Inspection List

		<u>Loc. Of</u>		<u>Root</u>	<u>Isolat</u>	<u>Instr. for Insul. Removal</u>	<u>Required Repairs</u>	<u>Date of Completion</u>
<u>No.</u>	<u>Description</u>	<u>Loc.</u>	<u>Valve</u>	<u>able</u>	<u>(Mrkd with Red Paint)</u>			
10	CRH Inlet Hdr Drain	B/R 6 th Floor	6 th Floor	Yes	6 th to 3 rd & @3 rd Fir Valve	05/23/03 - There is considerable thinning at 3rd floor level. This line should not be left pressurized when not in use. Root valve on 6th floor should be tagged		

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of		Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
			Root Valve	Isolat able			
14	SSH Inlet Hdr Drain	B/R 5 th Floor	5 th Floor	Yes	From 5 th to 3 rd & @ 3 rd Flr. Valve	05/23/03 - There is considerable thinning at 3rd floor level. This line should not be left pressurized when not in use. Root valve on 5th floor should be tagged closed and the secondary iso valve on 3rd floor tagged open. The only time the root valve should be opened is to facilitate draining the header. 05/30/03 - This line	

Unit Cold\Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
2	Drum Level Sight Gage & Drain	R 9 th Floor	Near Drum	Yes	U/L drum taps, water columns, drains (2 sets)	05/01/03 - External condition good on both sets. Reinsulate guage piping and columns with Calsil and metal cover (weather proof). The drain from both gauges crosses over to the Ewa side of the boiler and goes down to the blowdown tank. The drain line is in very good shape and needs no piping work nor any reinsulation requirements. See Sketch on S:\ drive. 0/10/2003 - Inpected for progress. Pad insulation needs to be changed to Casil w/ metal cover. No change in status! 10/21/04 - No change in status!	
3	Drum Vents	L/RL 9 th Floor	@Drum	Yes	Isolation valves and vertical vents & crossover at ends where insulated	External condition good on both vents. UTT readings taken. OK. Ed Chang to check vent-to-bushing weld on Ewa side. Brush off rust scale and reinsulate with Calsil and metal cover (weather proof). 9/10/2003 - Inspected for progress...no change! 10/21/04 - No change in status.	
4	Blowdown	L 9 th Floor	9 th Floor	If no BD Rqd	Remove all insulation from 9 th to 3 rd	04/03/03 - Ut readings taken.. A section of pipe from the 9th to the 6th floor found below code minimum thickness and another section below the 4th floor below code minimum wall thickness. Sketch of readings and repairs required are on the S:/ drive. The sketch shows the line needs to be replaced from below the 9th floor down to the 6th floor and a short dutchman below the fourth floor. No insulation is required except from the drum to the root valve (which as of 4/28/03 still need to be stripped and inpected. 05/01/03 - Revised sketch sent to Kahe which eleminated pad welding and increased replacement boundries slightly. Everything else remains unchanged. 9/10/2003 - Inpected for progress....no change!. 10/21/04 - Wire cage for PPE installed on 9th floor, otherwise, no change in status.	
5	Aux Stem By- pass	R 9 th Floor	9 th Floor	In no Aux Strn	From by-pass valve to cold elbow	UTT readings taken on pipe. OK. Reinsulate with Calsil and metal cover (weatherproof). 9/10/2003 - Inspected for progress. Found piping partial covered with pad insulaion. Pads need to be replaced by Calsil w.metal cover. 10/21/04 - No change in status. 10/21/04 No change in status.	

Unit Cold\Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
6	PSH Inlet Hdr Drain	F/L 7 th Floor	7 th Floor	Yes	Mostly uninsulated; remove all patches down to 3 rd	UTT reading taken on 7th floor down to the 4th floor on 4/03/03. OK. Balance of line UTT on 4/22/03. This line is in pretty good shape. 05/01/03 - No piping repair work is needed. A short portion of the line at the 7th floor needs to be reinsulated with Calsil and metal cover for personnel protection. See sketch on S:\ drive. 9/10/2003 - Inspected for progress.....no change! 10/21/04 - No change in status.	
7	PSH Outlet Hdr Drain	B/L 7 th Floor	7 th Floor	Yes	Remove all insulation from 7 th to 3 rd	UTT readings taken on 4/22/03. 05/01/03 - This line has two problem areas that need pipe replacements, below 5th and 4th floors. Reinsulation is required from the 7th floor to the 5th floor for personnel protection. In addition, a wire cage combined with two other lines is needed on the 3rd floor for personnel protection. See sketch on S:\ drive. 9/10/2003 - Inspected for progress...no change! 10/21/04 - Inspected for status.....no change! Insulation from boiler casing to root valve needs to be stripped, pipeline UTT'd and insulation redone.	
8	CRH Inlet Hdr Drain	B/R 6 th Floor	6 th Floor	Yes	6 th to 3 rd & @3 rd Fir Valve	UTT readings taken on 4/23/03. 05/01/03 - This line has problems above and below the 4th floor where the pipe needs to be replaced. Also, a short portion further down from the 4th floor need new pipe. Reinsulation is required from the 6th floor down to the 5th floor for personnel protection as is a wire cage combined with one other line on the 3rd floor for personnel protection. See sketch on S:\ drive. 9/10/2003 - Inspected for progress.....no change! 10/21/04 - No change in status.	
9	Econ Recirc Line	R 5 th Floor	5 th Floor	No	5 th to downcomer above 4 th	5/1/2003 - Insulation not removed. 9/10/2003 - No change...insulation still not removed. 10/21/04 - no change in status	
10	Econ. Drain Line	F/R 5 th Floor	5 th Floor	Yes	From 5 th to 3 rd (X s over on 4 th)	UTT readings taken on 4/23/03. 05/01/03 - This line is in pretty good shape and no piping replacement work is needed. The line needs to be reinsulated on the Waianae side above the 4th floor to the gas duct on the Waianae side for personnel protection. See sketch on S:\ drive. 9/10/20 - Inspected for progress... no change! 10/21/04 - No change in status.	

Unit Cold\Pressurized Inspection List

No.	Description	Loc.	Loc. Of	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
			Root Valve				
11	HRH Outlet Hdr Drain	B/R 5 th Floor	5 th Floor	Yes	From 5 th to 3 rd & @ 3 rd Flr Valve	UTT readings taken on 4/23/03. 05/01/03 - This line has multiple areas of wall thinning from above the 4th floor down to the 3rd floor. A section of the piping including 3 expansion loops is needed. Reinsulation is required at the 5th floor for personnel protection along with a wire cage combined with the CRH drain line on the 3rd floor. See sketch on SA drive. 9/10/2003. 10/21/04 - No change in status.	
12	SSH Inlet Hdr Drain	B/L 5 th Floor	5 th Floor	Yes	From 5 th to 3 rd & @ 3 rd Flr. Valve	UTT readings taken on 4/22/03. 05/01/03 - This line has wall thinning problems from a coupling above the 4th floor to the secondary valve on the 3rd floor. The piping needs replacement in this area. Reinsulation is required at the 5th floor for personnel protection and a wire cage combined with two other lines is needed on the 3rd floor for personnel protection. See sketch on SA drive. 9/10/2003 - Inspected for progress...no change! 10/21/04 - No change in status.	
13	SSH Outlet Hdr Drain	B/L 5 th Floor	5 th Floor	Yes	Mostly uninsulated; remove all insulation from 5 th to 3 rd	UTT readings taken on 4/22/03. 05/01/03 - This line is in very good shape and no piping repairs are needed. A short length of the line on the 5th floor needs to be reinsulated for personnel protections and a wire cage combined with two other lines is needed on the 3rd floor for personnel protection. See sketch on SA drive. 9/10/2003 - Inspected for progress.....no change! 10/21/04 - No change in status.	
At 3rd Floor Secondary valves							
14	PSH Outlet Hdr. Drain	B/L 3 rd Floor	7 th Floor	Yes	Above & below secondary valve	See item 7 above. 9/10/03 - No change! 10/21/04 - No change in status.	
15	SSH Outlet Hdr. Drain	B/L 3 rd Floor	5 th Floor	Yes	Above & below secondary valve	See item 13 above. 9/10/2003 - No change! 10/21/04 - No change in status.	
16	SSH Inlet Hdr. Drain	B/L 3 rd Floor	5 th Floor	Yes	Above & below secondary valve	See item 12 above. 9/10/2003 - No change! 10/21/04 - No change in status.	
17	PSH Inlet Hdr. Drain	L 3 rd Floor	7 th Floor	Yes	Above & below secondary valve	See item 6 above. 9/10/2003 - No change! 10/21/04 - No change in status.	
18	Econ. Drain	L 3 rd Floor	5 th Floor	Yes	Above & below secondary valve	See item 10 above. 9/10/2003 - No change! 10/21/04 - No change in status.	
19	Blr. Blowdown	L 3 rd Floor	9 th Floor	If no BD Rqd.	Above & below secondary valve	See item 4 above. 9/10/2003 - No change! 10/21/04 - No change in status.	
20	HRH Outlet Hdr Drain	R 3 rd Floor	5 th Floor	Yes	Above & below secondary valve	See item 11 above. 9/10/2003 - No change! 10/21/04 - No change in status.	

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
21	CRH Inlet Hdr Drain	R 3 rd Floor	6 th Floor	Yes	Above & below secondary valve	See item 8 above. 9/10/2003 - No change! 10/21/04 - No change in status.	
22	SSH Attemperator Spray Line	R 7 th Floor	7 th Floor	No - Cont. Servic e	From Root Valve for 3-4 feet	05/01/03 - This line was not identified to be part of the Cold/Pressurized Line Inspection List for K1 but the insulation was removed inadvertently on K2 to allow pipeline inspection. To hot while in use to UTT. Visual inspection indicates the line is as good as new. Replace removed insulation with calsil, metal cover and sealed to old insulation not removed. 9/10/2003 - Inspected for progress.....no change! 10/21/04 - No change in status. 2/11/05 - Inspected. Insulation completed. Job is complete.	Checked on 02/11/05 this item is completed
Kahe 3							
1	Drum Level Sight Gage	F/R 9 th Floor	Near Drum	Yes	U/L drum taps, water column, drain (2 sets)	8/06/03 - No repair work required on these pipelines. Columns and pipelines need to have insulation restored with Casil w/ metal cover—do not use pads.	Inspected on 3/9/2004 - This item is completed
2	Aux Steam By- pass	R 9 th Floor	9 th Floor	If no Aux Stm	Remove from by-pass valve thru cold elbow	8/06/03 - The cold end elbow in in good conditon. No piping repair or replacement work is required. This elbow requires insulation—use Casil w/ metal cover.	Inspected on 3/9/2004 - This item is completed
3	Drum Vents	R/L 9 th Plus	Above Drum	Yes	Remove from isolation valves, vertical vents & drains	8/06/03 - All the piping associated with the vents and N2 supply are in good condition and no piping repairs or replacements are required. Restore the insulation on the left side of the drum from the drum to the 1st isolation valve using Casil w/metal cover. The balance of the lines can remain bare. 10/21/04 - Inspected for progress. The Ewa side insulation needs the exposed top end weatherproof sealed . This job is still incomplete.	Inspected on 3/9/2004 - The Waianae side is completed. On the Ewa side additional insulation needs to be applied. See sketch. 10/21/04 - No change.
4	Econ Link Vent	R/L 9 th Plus	Above Drum	Yes	Remove from isolation valves & vertical risers	7/30/03 - The left (Waianae) side vent is in good shape and needs no repairs or replacement. The right (Ewa) side shows sever signs of external corrosion and the severely corroded pipe above and below the 1st isolation valve needs to be replaced. No insulation work needs to be done on either vent except to seal the penetration into the boiler casing. 10/21/04 - Inspected for progress. The boiler casing penetrations have been sealed with a sock-like application. This item is now complete.	Inspected on 3/9/2004 - 10/21/04 - Inpected for progress. This item is now complete.

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
5	PSH Rear Horiz. Out Hdr.(S2)	L 9 th Floor	9 th Floor	Yes	Remove insulation from 9 th to 3 rd	7/26/03 - There are many sections which are either below the ASME code minimum or are very marginal. Replace the line from the necked down section between the 8th & 9th floor down to the socket weld coupling between the 5th & 6th floor. This line can be left bare, thus no reinsulation work is required.	Inspected on 3/9/2004 - This item is completed
6	SSH Inlet Hdr Drain (S4)	L 9 th Floor	9 th Floor	Yes	Remove insulation from 9 th to 3 rd	7/26/2003 - There are many sections on this line which are either below the ASME Code minimum or are very marginal. Replace the line from the necked down section between the 8th and 9th floor down to the socket weld coupling between the 5th & 6th floor. This line can be left bare, thus no reinsulation work is required.	Inspected on 3/9/2004 - This item is completed
7	Blowdown	L 9 th Floor	9 th Floor	If no BD Rqd	Random spot check were marked 9 th , 8 th , 4 th & 3 rd	7/26/03 - There are a couple of very marginal areas under the 9th floor and corrosion is running into the insulation. Replace the line from the socket weld coupling beneath the 9th floor to a point just above the 8th floor. The line beneath the 9th floor may remain bare. Reinsulate the area the 4th floor where insulation was removed for inspection.	Inspected on 3/9/2004 - This item is completed
8	PSH Inlet Hdr Drain	L 6 th Floor	6 th Floor	Yes	Remove pads on root valve on 6 th floor and 1 st elbow on 5th	7/26/03 - There are areas on this line which are below the ASME Code minimum between the 5th & 6th floors. Replace all the line from the source root valve above the 6th floor down the the 5th floor. Remove the pad insulation from the header to the source root valve on the 6th floor and replace it using Calsil w/metal cover. No further insulation work is required.	Inspected on 3/9/2004 - This item is completed
9	APH Soot Blwr Supply Line	F/R/B 6 th Floor	6 th Floor	Yes	Spot check where marked on 6 th & 4 th	7/30/03 - These areas are in good condition and no pipeline repairs or replacements are necessary. Restore the insulation on the three sections using Calsil w/metal cover.	Inspected on 3/9/2004 - This item is completed
10	Main Steam Line Drain	F 6 th Floor	6 th Floor	Yes	Remove insulation from root valve to 45 degree elbow	7/30/03 - This line is in very good condtion and needs no piping repair or replacemendt. Reinsulate the line from the mainsteam line to the insulation on the 6th floor deck using Calsil w/ metal cover. The balance of the line can remain bare.	Inspected on 3/9/2004 - This item is completed

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
11	Econ Recirc. Line	L/B 5 th Floor	Below 9 th	Yes	Strip insulation on windward side from 5 th -6 th & cage	7/30/03 - Portions of this line was replaced after the blowout in 2002. The only work on this line relates to the insulation. All the insulation on the windward side (mauka) of the boiler should be removed to the Ewa/mauka corner of the boiler below the 8th floor. Wire cages should be install where personnel protection is required.	Inspected on 3/9/2004 - This item is completed
12	Inter. SH Outlet Hdr. Drain (S5)	L Mezz @ Vestibul e (5th)		Yes	Remove insulation on root valve to 1st elbow below	7/30/03 - This line is in excellent conditon and no pipeline repairs or replacements are required. The line can remain bare, thus no reinsulation work is required.	Inspected on 3/9/2004 - This item is completed
13	Econ. Drain	R Under 5 th Floor		Yes	Remove insulation @ 3rd Floor	03/20/03 - Ed Chang took UTT readings from the root valve under the 5th floor down to the secondary iso valve on the 3rd floor. Only the "bottle -necked" portion of the drain line above the stop valve on the 3rd floor needs replacement. The lowest reading wasl 0.116 (Sch. 40 pipe is 0.145). ASME Code minimum thickness is 0.134. Line should not remain pressurized when not in service. Keep secondary iso valve on 3rd floor open. The entire line should be left uninsulated. 7/30/03 -Replace the root source valve below the 5th floor as it leaks badly. There is some severe corrosion below the 4th floor down to just above the operating valves on the 3rd floor and someUT reading were found below the ASME Code minimum. The piping in this area needs to be replaced. The line can remain bare, thus no insulation work is required.	Inspected on 3/9/2004 - This item is completed
At 3rd Floor Secondary valves							
14	PSH Rear Horiz Out Hdr (S2)	L 3 rd Floor	9 th Floor	Yes	Insulation already removed	7/26/03 - No piping or insulation work required at this level. See Item 5 above for repair instructions higher up on this line.	Inspected on 3/9/2004 - This item is completed
15	SSH Inlet Hdr. Drain (S4)	L 3 rd Floor	9 th Floor	Yes	Insulation already removed	07/24/02 - Found line severely corroded (necked down) just above the secondary root valve at the 3rd floor level during the initial inspection.. Replaced bad section with a dutchman immediately. Left line uninsulated. Gave corroded section removed to Aaron Fjinaka for show & tell.. 7/26/03 - No further work in required on this line at this level. See Item 6 above for repair instructions higher up on this line.	Completed 7/26/02

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Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
1	Drum Level Sight Gauges	L 9 th Floor	Near Drum	Yes	U/L drum taps, water columns, drains (2 sets)	9/2/2003 - Scrape off all corrosion exfoliation and paint with high-temperature paint. Restore insulation on piping and level gauge columns. 1/5/2004 - Need to seal old-to-new insulation joint on the Waianae side gauge U/L drum tapes. Seal insulation connection at top of water column and where drain meet up with old insulation. On most Ewa gauge, Need to seal joints at top and bottom of water column, the end of insulation below the water column and where the uninsulated drain meets the insulated drain. Weather proofing on elbows has worn off...recoat.	Inspected 3/9/2004 - This item is completed.
2	Sight Gauge Vent Pipeline	L 9 th Plus	Near Drum	Yes	From 1 st iso valve, vertical and horizontal section from secondary valve	9/2/2003 - Scrape off corrosion exfoliation and paint with high temperature paint. Reinsulate piping from top of Yarway Level Alarm and sight gauge back to the vent line but not above the 2nd isolation valve. Do not use pads. 1/5/2004 - Weather proofing mastic above the 2nd isolation valve on the vent and at the two elbows to the top of the sight gauge needs recoating.	Inspected 3/9/2004 - This item is completed.
3	Drum Vents	R/L 9 th Plus	Above Drum	Yes	2X - Isolation valves & vertical vents	9/2/2003 - Waianae Side: no repairs or insulation needed. Make sure exposed ends are sealed. Ewa Side: Replace piping from 1st isolation valve to elbow past 2nd isolation valve with 1-1/2" Sch. 160 pipe on the incoming N2 Supply Line. Reinsulation not needed but make sure exposed ends are sealed. 1/5/2004 - On Ewa side vents, need to seal top on N2 supply line insulation. Waianae side is completed.	Inspected 3/9/2004 - This item is completed.
4	Aux Steam Vent	L 9 th Plus	9 th Plus	Yes	From 1 st Root Valve	9/2/2003 - Seal end of existing insulation with a weather proof seal.	Checked on 1/5/2004 This item is completed.
5	Econ Link Vents	R/L 9 th Plus	Above Drum	Yes	2 X Remove pads from 1 st Root Valve & vertical vents	9/2/2003 - Waianae Side: Replace area just above the 2nd isolation valve necked down to 0.119" with Sch 80 3/4" pipe. Scrape off all flaking corrosion scale and paint full length of pipe with hi-temp paint. No reinsulation required but seal area of wall penetration. Ewa Side: Scrape off all flaking corrosion scale and paint full length of pipe with hi-temp paint. No reinsulation required but seal area of wall penetration.	Checked on 1/5/2004 This item is completed.
6	N ₂ Supply Line	R 9 th Plus	9 th Floor	Yes	Remove insulation n horizontal section, two valves & elbow	9/2/2003 - See repair notes for Drum Vents above which include N2 Supply Line. 1/5/2004 - See comments for item 3. above.	Inspected 3/9/2004 - This item is completed.
7	PO ₄ Line	L 9 th Floor	9 th Floor	Yes	Remove pad insulation @ 9 th Floor	9/2/03 - No repair or insulation work required.	Completed 9/11/2003

Unit Cold\Pressurized Inspection List

No.	Description	Loc.	Loc. Of		Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
			Root Valve	Isolat able			
8	Aux. Steam by-pass	F/L 9 th Floor	None	No	From by-pass valve to cold elbow	9/2/03 - No repair or pipe replacement required. Insulation on line and elbow needs to be restored using Calsil w/metal cover. 1/5/03 - Section from "T" on supply line to 1st isolation valve is not insulated yet. Bypass line from 4' stub-up to isolation valve not insulated yet.	Inspected 3/9/2004 - This item is completed.
9	Econ. Recirc Line	F/R 9 th Floor None	None	No	9 th to 5 th spot check where painted; remove all insulation on windward (mauka) side and cage	8/29/03 - Build-up weld deep pits on Ewa side of horizontal run. Replace section of pipe with Sch. 160 pipe at Ewa-Mauka corner of boiler. Replace section of pipe with deep pits with Sch 160 pipe from the SW Coupling between the 6th and 7th floors down to a visible good area on the pipe between the 5th and 6th floor. Leave line bare from the Ewa-mauka corner to root valve below 5th floor. add wire cages as needed for PE. The section of line from the drum to the Ewa-mauka corner need insulation with Calsil & metal cover. 1/5/2004 - Insulation completed down to 8th floor. Need to replace piping on right side of boiler on horizontal run, on Ewa-mauka corner and at 6th floor. Insulation needed on right side horizontal run snf from FW Inslet header to 1st isoaltin valve at lower 5th floor. and PP cage on vertical run. 3/9/2004 - An elbow and a short vertical run just under the 8th floor needs to be insulatated using Calsil and metal cover. 4/26/2004 - Checked on short vertical run. Wire cages used in lieu of Calsil & metal cover. Ok now.	Inspected 3/9/2004 - This item is not completed. Inspected 4/26/2004 - This item is now completed.
10	PSH Outlet Hdr Dm (S2)	F/R 8 th Floor	9 th Floor	Yes	Vertical section to 3 rd	9/2/03 - Scrape off all exfoliated corrosion products from below the 9th floor down to the 4th floor and paint with hi-temp paint. Replace pipe above isolation valve on 3rd floor upwards 4' with Sch. XX Strong pipe and beneath the valve downward 6' with Sch 40 pipe. Insulation is not required on this line-leave line bare except above 9th floor. 1/5/2004 - Item found completed	Checked on 1/5/2004 This item is completed.
11	Drum Level Gauges Drain	L 8 th Floor	9 th Floor	Yes	Remove insulation from 8 th to 3 rd on right side of boiler	9/2/03 - Replace pipe between 7th & 8th and 3rd & 4th floors. No insulation required - leave line bare. Also see Item #30 below. 1/5/2004 - Item found completed.	Checked on 1/5/2004 This item is completed.

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of		Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
			Root Valve	Isolat able			
12	Attemperation Supply Vent Stub	B/L 8 th Floor	8 th Floor	Yes	Vertical stub above 1 st root valve	9/2/03 - No repairs or replacement required on stub. No requirement to reinsulated-leave stub bare. Seal insulation around area where stub comes up out of the 3" line. 1/5/2004 - Attemperator control station replaced in total. Insulation above 8th floor remains unfinished.	Inspected 3/9/2004 - This item is completed.
13	SH Attemperation Supply	L 7 th Mezz	7 th Mezz	If no attp rqd	Remove insulation at 2 nd elbow left side of boiler past isolation valve	9/2/03 - No repairs or replacement required on this line. Restore insulation to match balance of pipeline using Calsil w/ metal cover.	Checked on 1/5/2004 This item is completed. In fact, the entire Aux. Steam Line was stripped of the fiberglass insulation and replace with Calsil w/ metal cover.
14	SH Attemperation X Feed	L/B 7 th Floor	7 th Floor	Yes	7 th thru mezz. deck to elbow below 7 th	9/2/03 - No repairs or replacement required on the line between the attemperator pipeline and the 7th floor deck. Reinsulation not required. 1/5/2004 - Insulation is partially completed...incomplete from between isolation valves down to the 7th floor.	Inspected 3/9/2004 - This item is completed.
15	SH Attemperation X Feed Line	L/B 6 th Mezz	7 th Floor	If no X feed rqd	From "T" under 7 th floor to elbow and on horizontal section to elbow at B/L Structural Column	9/2/03 - Replace the 1" pipe from the SW Coupling beneath the 7th floor down to the grating below the SW Coupling just above the Upper 6th floor with Sch. 160 pipe. Reinsulate or wire cage 1" piping between the 6th & 7th floors for PE. 1/5/2004 - Pipe replaced from SW coupling to isolation valve. Need to be reinsulated or fit with a PP wire cage to 6th floor.	Inspected 3/9/2004 - This item is completed.
16	PSH Rear Horiz In Hdr Dm(S1)	R 6 th Floor	6 th Floor	Yes	Remove pads on line above 6 th Mezz	9/2/03 - Replace pipe from just beneath the Upper 6th floor to the elbow below the 5th floor with Sch. 160 pipe. Reinsulate piping from the side of the boiler above the 6th floor down to the elbow below the 5th floor using Calsil w/ metal cover for PE. 1/5/2004 - Need to seal end of insulation as the pipe enters the Ewa side of the boiler. The SW coupling above the 6th floor needs to be insulated. The pipeline beneath the upper 6th floor down th the elbow below the 5th floor has been replaced, but the line from the upper 6th floor to the 5th floor still needs to be reinsulated. 3/9/2004 - Inspected line. Need to extend the PPE cage down to the 5th floor approximately 3 1/2'. 4/26/2004 - Inspected on 4/26/2004 and found the wire cage was extended. This item is now complete.	Inspected 3/9/2004 - This item is not completed. Inspected 4/26/2004 - This Item is now completed.

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
17	SSH Outlet (MS)Hdr Dm(S6)	F 6 th Floor	6 th Floor	Yes	Remove insulation from 6 th to 3 rd	9/2/03 - Replace necked down area and short nipple between 3rd & 4th floor. Scrape off exfoliation and reinsulate piping from the MS line below the 5th floor clearing platform railing below 5th floor and reinsulate using Calsil w/ metal cover for PE. Also see item 27 below. 1/6/2004 - Inspected line and found all work is completed.	Checked on 1/6/2004 This item is completed.
18	Soot Blower Supply Line to SB1	L Below 7 th	(?)	Yes	Elbow below SB1 & 3 rd Floor	9/2/03 - No repair for replacement work is required on this line. Restore insulation to match existing Soot Blower piping insulation using Calsil w/ metal cover. 1/5/2004 - The old-to-new insulation joint needs to be sealed.	Inspected 3/9/2004 - This item is completed.
19	SH Attenuation Supply Line	L 5 th Floor	(?)		Remove insulation on vertical section between 5 th & 6 th	9/2/03 - Strip off all the fiberglass insulation from the 3rd floor up to the 8th floor and replace it using Calsil with metal cover. 1/5/2004 - Item found completed.	Checked on 1/5/2004 This item is completed.
20	Chem Pot Fdr Ln @ Econ Inlet	B 5 th Drop	5 th Drop	Yes	Remove insulation from FW line to two isolation valves	9/2/03 - No repairs or replacement are needed for this line. Leave line bare except from feedwater supply line to 1st isolation valve. 1/5/2004 - Line from feedwater supply line to 1st isolation valve need to be insulated using Calsil w/ metal cover.	Inspected 3/9/2004 - This item is completed.
21	Old Gauge Line off Econ Inlet	B 5 th Drop	5 th Drop	Yes	Remove insulation on short section between isolation valves	9/2/03 - Surface corrosion noted under insulation stub out of FW line - remove insulation from stub to allow further inspection. 9/16/03 - Insulation removed...tried to UTT the stub but was too hot and will have to UTT when the unit is off line. After UTT on stub, reinsulate to the 1st isolation valve and seal end to block moisture intrusion using Calsil w/ metal cover. 1/5/2004 - Insulation was stripped and pipe UTT'd. No repairs to pipe needed. Needs to be reinsulated from feedwater line to 1st isolation valve and sealed.	Inspected 3/9/2004 - This item is completed.

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of		Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
			Root Valve	Isolat able			
22	Econ. Inlet Hdr Drain	R 5 th Floor	Below 5 th	Yes	Remove insulation from below 5 th deck to 3 rd	03/14/03 - Insulation removed, UTT inspected on 3/06/03 and 3/13/03 by B. McCraw. 3' to 4' Mauka & Ewa side of 2nd elbow below floor 5 needs to be replaced. Leave drain line uninsulated. 04/06/03 - Replacement of bad portions of line were completed on 04/06/03. Notified Rona Kiyabu that W/O #PR032429, Task 22 could be closed. Sketch Revised 8/29/03 - Replace two short nipples on either side of the "T" below the coupling and above the isolation valve between floors 3 & 4 using Sch. 160 pipe. Insulation not required - leave line bare. Also see Item # 28 below. 1/5/2004 - Re-UTT'd the two short nipples at 3rd floor confirming they have been replaced. This item is completed.	Pre-revision tasks Completed 4/6/2003 Checked on 1/6/2004 This Item is completed.
23	Blowdown Line	R 3 rd Floor	@Drum 9 th	If no BD	Remove insulation above 3 rd Floor @ 3 rd floor	9/2/03 - No piping repairs or replacements are required. Restore insulation at the	Checked on 4/5/2004

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
28	Econ. Drain to BD Tank	R 3 rd Floor	(?)	Yes	Above and below secondary valve & as marked	8/29/03 - Sketch revised. See Item 22 above for repair instructions. 1/5/2004 - Refer to Item. 22 above. Two nipples confirmed replaced by UTT. This item is completed.	Checked on 1/6/2004 This item is completed. See item 17 above.
29	Blr. Blowdown	R 3 rd Floor	9 th Floor	If no BD Rqd.	Above 3 rd floor as marked	9/2/03 - See Item 23 above for repair instructions. 1/5/2004 - Item inspected and found completed.	Checked on 1/5/2004 This item is completed. See item 17 above.
30	Blr. Site Glass Drain	R 3 rd Floor	9 th Floor	Yes	On vertical section @ 3 rd	9/2/03 - See Item 11 Above for repair instructions. 1/5/2004 - Item inspected and found completed.	Checked on 1/5/2004 this item is completed. See Item 11. above.
Ot her							
31	Safety Valve Vents				Strip insulation off all Safety Valve Vents	9/2/03- All SV vents have had the insulation removed. All need to have the corrosion scale scrapped off and painted with a hi-temp paint. Do not reinsulate - leave vent piping bare. 10/21/04 - Inspected for progress. No change!	Checked on 4/26/2004 - No change in status. Not completed. Inspected for progress 10/21/04 - No change.
32	SSH Frnt Horiz In Hdr Dm (S4)	R N/A	9th Floor	Yes	UTT line only	9/2/03 - No piping repairs or replacement required. No insulation work is required except above 9th floor.	Completed 7/15/2003
Kahe 5							
1	Drum Level Sight Gage	R 10 th Plus	Near Drum	Yes	U/L drum taps, water column, drain (2 sets) where insulation is damaged - see paint	Corroded areas found where the thickness is below the Code minimum of .0903. Nominal thickness was .250. Replace section of pipe on 10 th floor from SG to 1 st valve at 10 th floor grating. Gauge piping and water column was reinsulated with Calsil and metal lagging.	9/6/2002 Completed Re-checked on 01/05/2004 - OK
2	Cont. BD Line	R 10 th Plus	Near Drum	Yes	@10 th Plus from RoVa around 1 st 3 elbows and @ 3 rd floor above Cont. BD Valve	External condition good. Reinsulate with calsil & metal lagging. UTT readings taken at reducer. OK. Reinsulate with calsil and metal lagging.	9/6/2002 Completed Re-checked on 01/05/2004 - OK
3	PSH Outlet Hdr Drain	F/L 8 th Floor	8 th Floor	Yes	Remove pad insulation a short distance from RoVa (Done)*	External condition OK. Leave uninsulated. PP not required as line is on boiler side of railing.	9/6/2002 Completed Re-checked on 01/05/2004 - OK

Unit Cold\Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
4	HRH Unused Gauge Line	F 8 th Floor	8 th Floor	Yes	Remove insulation between Root & Secondary Valve	External condition OK. PP possibly need if line not removed. Line not hot. No PP required 10/21/04 - Inspected for Progress. Eliminate the need to provide Calsil w/metal cover on the line from the HRH line past the 1st elbow for about 1'. The Piping still needs to be reinsulated from the end of the current insulation out to the two second isolation valves.	9/6/2002 Re-checked on 01/05/2004 - Note: Need to seal end of insulation facing up. Rechecked on 3/09/04 - reinsulate piping from end of current insulation out to the two second isolation valves. Inspected 10/21/04 - reinsulation of piping noted above still incomplete.
5	HRH Outlet Hdr Drain	F/L 7 th Floor	7 th Floor	No	Remove padded insulation @ 7 th Floor before RoVa (Done)*	Same comments as Item No. 3 above.	9/6/2002 Completed Re-checked on 01/05/2004 - OK
6	CRH Inlet Hdr Drain	F/L 6 th Floor	6 th Floor	No	Remove padded insulation @ 6 th Floor before RoVa (Done)*	UTT readings taken. Found as low as .184. Normal thickness about .267. Leave uninsulated. No PP required as line is on boiler side of railing. 9/6/2002 - Note: Spot check UT on corroded area.	1/14/2004 Completed Spot UT OK
7	SSH Outlet Hdr Drain	F/L 6 th Floor	6 th Floor	No	Remove padded insulation @ 5 th Floor before RoVa (Done)*	Starting to corrode under insulation. UTT reading taken still OK. Leave uninsulated. No PP required as line is on boiler side of railing. 9/6/2002 - Note: Spot check UT on corroded area.	1/14/2004 Completed Spot UT OK
8	Econ. Recirc. Line	R 5 th Floor	None	No	Strip insulation from downcomer to econ. Inlet	External condition OK. Re-insulate with calsil and metal lagging.	9/6/2002 Completed Re-checked on 01/05/2004 - OK
9	SSH Inlet Hdr Drain	F/L 5 th Floor	5 th Floor	Y/N	Remove padded insulation @ 5 th Floor before and after RoVa (Done)	Starting to corrode under insulation. UTT readings taken and still OK. Leave uninsulated. No PP required as line is on boiler side of railing.	9/6/2002 Completed Re-checked on 01/05/2004 - OK
Kahe 6							
1	Cont. BD Line (Upper)	B/R 9 th Floor	10 th Floor	Yes	Remove painted section 9 th floor @ back/right of boiler	Insulation removed as of 10/31/2003 - Checked 1/05/2003...No change...Still needs UTT inspection. 1/16/2004 - UTT inspection conducted on 1/16/2004. No pipeline repairs or replacements required. Need to restore insulation. 10/21/04 - Inspected for progress. This item has been finished.	Inspected 3/09/2004 Reinsulation work still not complete. Checked 5/11/04 No change Inspected for progress. This item is now complete.
2	PSH Outlet Hdr Drain	F/R 8 th Floor	8 th Floor	No	Pad type insulation short distance before RoVa (removed)	Insulation removed as of 10/31/2003 - Checked 1/05/2003...No change...Still needs UTT inspection. 1/16/2004 - UTT inspection conducted on 1/16/2004. No pipeline repairs or replacements required. No insulation work required. This item can be closed.	1/16/2004

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
3	PSH Inlet Hdr Drain	R/B 7 th Floor	7 th Floor	No	No Remove short piece of insulation before RoVa	Insulation removed as of 10/31/2003 - Checked 1/05/2003...No change...Still needs UTT inspection. 1/16/2004 - UTT inpection conducted on 1/16/2004. No pipeline repairs or replacements required. No insulation work required. This item can be closed.	1/16/2004
4	HRH Outlet Hdr Drain	F/R 7 th Floor	7 th Floor	No	Remove insulation from RoVa @ 7 th back to boiler casing	Insulation removed as of 10/31/2003 - Checked 1/05/2003...No change...Still needs UTT inspection. 1/16/2004 - UTT inpection conducted on 1/16/2004. No pipeline repairs or replacements required. No insulation work required. This item can be closed.	1/16/2004
5	CRH Inlet Hdr Drain	R/F 6 th Floor	6 th Floor	No	Remove insulation from RoVa @ 6 th back to 1 st elbow	Insulation removed as of 10/31/2003 - Checked 1/05/2003...No change...Still needs UTT inspection. 1/16/2004 - UTT inpection conducted on 1/16/2004. No pipeline repairs or replacements required. Leave insulation on vertical as-is. Balance of line can remain bare. This item can be closed.	1/16/2004
6	SSH Inlet Hdr Drain	R/F 5 th Floor	5 th Floor	No	Remove insulation from RoVa @ 5 th back to vestibule flashing	Insulation removed as of 10/31/2003 - Checked 1/05/2003...No change...Still needs UTT inspection. 1/16/2004 - UTT inpection conducted on 1/16/2004. No pipeline repairs or replacements required. No insulation work required. This item can be closed.	1/16/2004
7	Econ. Recirc Line	L 5 th Floor	None	No	Restore insulation – cage from down corner to valve	Insulation removed and pipe UT inspected during the 2002 overhaul. Pipe condion is excellent. Use Calsil and metal lagging insultion to restore all insulation from the downcomer to the feedwater inlet header. No change as of 10/05/2003.. Rechecked on 1/5/2004 no change. 1/16/2004 - UTT Skecth made and sent to Kahe Planners. Need to restore insulation. 10/21/04 - Inspected for progress. No change.	Inspected 3/09/2004 Reinulation work still not complete. Checked 5/11/04 No change Inspected for progress 10/21/04 No change
8	Cont. BD Line (Lower)	R/B Mid Bmr	10 th	Yes	Remove insulation @ bottom of riser covering two elbows	Insulation removed as of 10/31/2003 - Checked 1/05/2003...No change...Still needs UTT inspection. 1/16/2004 - UTT inpection conducted on 1/16/2004. No pipeline repairs or replacement required. Need to restore insulation. 10/21/04 - Inpspected for progress. No change!	Inspected 3/09/2004 Reinulation work still not complete. Checked 5/11/04 No change Inspected for progress 10/21/04 No change
Waiau 3							
Nothing found! 8/13/02						None	8/13/2002
Waiau 4							
Nothing found! 8/13/02						None	8/13/2002
Waiau 5							

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
1	Hog Jet Vent	E 8 th - 4 th Floor	3 rd Floor	Yes	Strip all insulation from 8 th to 4 th floor	Bad @ 8 th , 7 th & 6 th floor to 2 nd 45° elbow. Balance of line is OK. Replace section of pipe marked with red paint. Leave insulation off	Completed 12/30/2002
2	PO ⁴ Line	W/Ma 8 th Floor	@drum	Yes	Remove insulation & pads from drum to 8th floor deck	PO ₄ line is OK. Leave insulation off.	Completed 10/02/2002
3	Boiler Drum Vent, Press Guage Tap, N ₂ X-Over	W/Ma 9 th Floor	Above drum	Yes	Remove pads from root valve to 2ndry valve	Found some rust and flake. UTT indicates sufficient wall thickness with N ₂ X-over = .218; Vent line = .138; 2 nd valve body = .957. Leave insulation off.	Completed 10/02/2002
4	Flash Tank Vent	Mi 8 th Floor	None	No	Remove insulation from piping @ 8th Floor	Found flaky rust above and below 8 th floor. UTT on top = .352 and on bottom = .308. Plenty of wall thickness left. Scrape off flakey rust. Add expanded metal PP on mauka side of pipe.	Completed 12/30/2002
5	Aux Steam to DAH	E/Ma 7 th Floor	7 th Floor	Yes	Remove insulation pads @ Safety Valve	This line is OK. Leave insulation off	Completed 10/02/2002
6	Aux Strm S/O Valve	W/Ma 7 th Floor	7 th Floor	Yes	Remove pad insulation on isolation valve	No indication of rust or corrosion found. Leave insulation off.	Completed 10/02/2002
7	Aux Steam Drain to BD	Ma 6 th Floor	8 th Floor	Yes	Remove insulation below 7th (on 6th) on drain and by-pass piping	Assembly found badly corroded. Replace entire assembly including piping, trap and valves as marked with red paint. Leave insulation off but add some type of PP. 10/26/04 - Inspected to check progress. Decision was made to reinsulate using Calcil and metal covering. Job is complete!	Piping, valves, traps and fittings complete as of 1/21/02. Still needs some kind of PP. 10/26/04 - Reinsulated with Calsil & metal covering. Completed
8	Continuous BD Line	W 3 rd Floor	8 th @ drum	Yes	Remove insulation at 3 rd floor & below	CD piping found with some corrosion but wall thickness is OK @ .212 (Normal = .250). As insulation induces corrosion, remove insulation below the 3 rd deck to the bottom 90° elbow. Repairs need to be made to the "U" brackets and hangers beneath the 3 rd floor	Completed 12/30/2002
9	Attemperation Spray	W 3 rd Floor	3 rd Floor	Yes	Remove insulation & valve pads on all areas marked with red paint @ 3 rd floor	Ok, little to no corrosion found. Leave insulation off.	Completed 10/02/2002
10	SSH Drain	W 3 rd Floor	8 th Floor	Yes	Remove pad & insulation from secondary valve to bracket	Ok, little to no corrosion found. Leave insulation off.	Completed 10/02/2002
11	APH Spot Blow	W	1 st Floor	Yes	Pad insulation on supply line &	Insulation was removed. The supply line	

Unit Cold\Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
1	Soot blower Steam	Top Steel 10th	10 th Floor	Yes	Remove insulation from 2ndry valve (handle painted yellow) to elbow past Safety valve and		
2	PO ₄ Supply Line	E 8th	@Pump	Yes	Remove insulation from check valve to 1 st elbow		
3	Boiler Vent	W 9th	9th floor	Not from drum to iso valve	Remove insolation from drum up		
4	Aux Steam Supply	W 9th	9th floor	Yes	Remove insulation from drum vent take-off to just below 9th floor		
5	Sight Glass Drain	Ma/W 8 th	8 th Floor	Yes	Remove insulation from isolation valve to "T"		
6	Hog Jet Vent	Ma/W 8 th	3 rd Floor	Yes	Strip insulation @ 8 th floor		
7	Continuous Blow Down	W 8th-6 th	8 th Floor	Yes	Remove insulation drum on 8th floor through the 2nd 45 deg. elbow above the 6th floor (some already missing)		
8	Steam Supply to SB 2 & 3	E 6 th	7 th Floor	Yes	Remove insulation pads on "Y" & vert. section between 6 th & 7 th	New piping installed. Needs to be reinsulated	10/26/04 - Inspected for Status - Completed
9	Ewa side Sight Glass Drain	Ma/E 4 th	8 th Floor	Yes	Remove insulation from section under 5 th Floor		
10	Hog Jet Steam Supply & Air Vent	Ma/W 3rd	??	??	Remove insulation @ 3rd floor as marked		
11	Soot Blower Steam to APH	On top of Control Room	7 th Floor	Yes	Remove insulation from elbow @ column to "T" Roof & beyond	Piping is ok. Reinsulate and weather proof the lines.	Completed as of 9/1/04 - Piping was rerouted for DCS
12	APH S/B piping to supply	W 2 nd	7th Floor	Yes	Remove all pads (some pad insulation already missing) from APH steam supply lines starting at the upper CV On 3rd floor level down through the rest of the piping and traps to the blowdown tank.	Note: some APH steam piping is noticeably corroded along with traps, drains, etc below 3rd floor near APH)	
13	PSH inlet drain	W 2 nd	3 rd floor	Yes	Remove insulation just below T at 3rd floor and from short run below 3 rd floor grating		
Waiau 7							
1	N ₂ Feed Lines (2 sides)	Ma/E & Ma/W B6+	B6+	Yes	Remove insulation between root valves & to 1 st elbow	No pipeline repairs needed. Lines can be left bare from drum to vents to the X-Over pipe insulation. 10/26/04 - Inspected during operation. Previous decision to leave line bare is unacceptable for PPE. Reinsulate line and valve from Drum Vent down to the x-over line insulation with Calcil & metal covering.	10/24/2003 Checked on 1/8/2004 - Completed 10/26/04 - Reopened...see instructions in previous column.

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of		Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
			Root Valve	Isolat able			
2	Vent & Site glass taps	Ma/E B6+	B6+	Yes	Remove insulation between root valves and from upper & lower tap legs to site glass and water column (2 ea)	For the sight guages, taps and vents, eliminate the 2nd vent valve on Gauge 2 and replace piping from 1st vent valve to top of vent with Sch. 40 pipe. Columns and pipelines to the gauges need to have the corrosion exfoliation scraped off and then painted with hight-temperature paint. Insulation on these lines and gauges needs to be restored with Calsil w/ mwta cover - do not use pads! No pipeline repairs needed, exfoliation scraped off	10/24/2003 Checked on 1/8/2004 Ewa Side is completed but Waikiki side needs additional insulation

Unit Cold\Pressurized Inspection List

No.	Description	Loc.	Loc. Of		Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
			Root Valve	Isolat able			
7	Sec SH Inlet Hdr Dm	W B6	B6	Yes	Remove insulation from root valve to 1 st elbow	No piping repairs or replacements required. Restore insulatio above dec B [^] using Calsil with metal covering - do not use pads . Remove short portion of insulation below B6 deck. Balance of line can remain bare. 10/26/04 - Inspected for status. This task has been completed.	10/26/04 Checked for status. Completed!
8	Unused PI connection	W B6	B6	Yes	Strip all insulation	No pipeline repairs or replacements required. No insulation work required.	10/24/2003 Checked on 1/8/2004 - Completed!
9	PSH Outlet Hdr Dm	W B6	B6	Yes	Strip all insulation	No pipeline repairs or replacements are required on this line. Restore insulation above Level B6 using Calsil with metal covering - do not use pads . The balance of the line can remain bare. 10/26/04 - Inspected for status. This task has been completed.	10/26/04 Checked for status. Completed!
10	CRH Inlet Hdr Vent	W/Ma B5	B5	Partial	Strip off all insulation	No piping repairs or replacements required. No insulation work required. 10/26/04 - Inspected during operation. Previous decision to leave line bare is unacceptatble for PPE. Need to reinsulatate to 1st isolation valve for PPE	10/24/2003 Checked on 1/8/2004 - Completed. 10/26/04 - Reopened...see instructions in previous column.
11	SSH Outiet Drain (MS)	Ma B3	B3	Yes	Remove insulation from root valve to bottom Iso valve @B	This line is in reasonably good condition. No repairs or replacements are needed. Reinsulate from the main steam line to the elbow on the Waikiki side of the boiler between Levels B3 & B2 - use Calsil with metal cover... do not use pads! Leave balance of line bare.	10/24/2003 Checked on 1/8/2004 - Completed!
12	PSH Inlet Drain	Mi/W B3	B3+	Yes	Remove insulation from root valve to bottom Iso valve @B0	Build-up weld pidts on the short horizontal run between B2 and B3+. Reinsulate pipe above the Upper B3 floor for personnel protection.	10/24/2003 Checked on 1/8/2004 - Completed!
13	SH. Inter Hdr Drain	Ma/W B2	B2	Yes	Remove insulation from root valve out to elbow	No piping repairs or replacements required on this line. Restore insulation from boiler casing to 1st elbow after the isolation valve belwo B2 - use Calil w/ metal cover... do not use pads! Leave balance of line bare. 10/26/04 - Inspected under operation. re-evaluated need for reinulation. Not need for PPE. This task is considered complete.	10/26/04 Checked for status. Completed!

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolatable	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
14	Econ Inlet Hdr Drain	Mi B2-	B2-	Yes	Remove insulation from root valve to bottom Iso valve @B	There are no pipeline repairs or replacements required on this line. Restore insulation from the connection to the header down to the 3rd elbow on the line. Use Calsil w/ metal cover - do not use pads! Leave balance of line bare exceptd where insulation already exists. 10/26/04 - Inspected under operations. Drain was modified for expansion during overhaul. Need to insulate from boiler casing to and inscluding root valve with Calsil & metal covering.	10/24/2003 Checked on 1/8/2004 - Completed. 10/26/04 - Reopened...see instructions in previous column.
At "B" Level Secondary Valves							
15	Junction Hdr Drain (S5)	W B	B2	Yes	Remove insulation above bottom Iso valve	See instructions for # 13 above.	10/24/2003 Checked on 1/8/2004 - Completed
16	PSH Inlet Drain (S1)	W B	B3+	Yes	Remove insulation above bottom Iso valve	See instructions for #12 above.	10/24/2003 Checked on 1/8/2004 - Completed
17	SSH Inlet Hdr Drain (S4)	W B	B6	Yes	Remove insulation above bottom Iso valve	See instructions for # 7 above.	10/24/2003 Checked on 1/8/2004 - Completed
18	PSH Outlet Drain (S2)	W B	B6	Yes	Remove insulation above bottom Iso valve	See instructions for # 9 above.	10/24/2003 Checked on 1/8/2004 - Completed
19	SSH Outlet Drain (MS)(S6)	W B	B3	Yes	Remove insulation above bottom Iso valve	See instructions for # 11 above	10/24/2003 Checked on 1/8/2004 - Completed
Other							
20	Bottom Header Drain	W Grnd	Grnd	Yes	Remove short piece of insulation between root valve and secondary valve (painted)	No piping repairs or replacements required. No reinsulation work required.	10/24/2003 Checked on 1/8/2004 - Completed
21	Safety Valve Vents	Ma/W/E B6+, B6, B5		No	Strip insulation off all Safety Valve Vents	CRH RV Vent Stack on Waikiki Side of Boiler at B6 Uppe and HR RV Vent Stack on mauka side of Boiler at B6 - - Install a 12" banc 3/8" thick aroun vent stack at heavily corroded area. Paint Relief Valve vents black to match existing.	10/24/2003 Checked on 1/8/2004 - Completed
Waiau 8							
1	Aux. Steam Bypass	W/Ma B6	None	No	Remove insulation @ 1 st cold elbow	Line and elbow OK - No corrosion. Elbow and line partially reinsulated. Need to install metal cover and complete weather proofing	Incomplete 3/12/032 No change 06/20/03 Complete as of 10/18/04
2	Site glass upper/lower tap legs (2 sets)	W/Ma B6+	B6+	Yes	Remove insulation from 1 st isolation valve at B6+ thru gage column & vent at B6	No repairs needed. Reinsulate using Calsil w/metal weather proof cover.	Complete as of 10/18/04
3	Drum Vent	W/Ma B6+	B6+	Yes	Remove pads above, below and between isolation valves	No repairs needed. Reinsulate using Calsil w/metal weather proof cover.	Complete as of 10/18/04
4	N. Line (2 sides)	W/E/Ma B6+	B6+	Yes	Remove pads @ isolation	No repairs needed. Reinsulate using Calsil w/metal weather proof cover.	Complete as of 10/18/04

Unit Cold/Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolatable	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
5	Rt & Lft Econ Link Vents	W/E	On top of boiler	Yes	Remove insulation and/or pads between root and Secondary valves (Note: Calsil insulation on Waikiki side and pads on Ewa side)	No repairs needed. Leave bare.	Complete as of 10/18/04
6	SSH Inlet Hdr Drain	E B6	B6	Yes	Remove insulation @ 1 st elbow past root valve	No repairs needed. Reinsulate from boiler casing to opening in B6 (including the valve). 10/26/04 - Pad insulation was used to cover the valve and the 1st elbow. Pads are not acceptable for this pipeline. Need to pad insulate the valve only and reinsulate the line from the valve, through the 2 elbows to the B6 deck penetration with Calcil & metal covering.	Incomplete 10/18/04. Inspected on 10/26/04 - Still incomplete (see previous column for details).
7	Unused Drum Pressure Tap	E B6	B6	Yes	Remove all insulating pads between 3 isolation valves	No repairs needed. Leave bare.	Complete as of 10/18/04
8	PSH Outlet Hdr Drain	E B6	B6	Yes	Remove insulation @ 1 st elbow past root valve	No repairs needed. Reinsulated from boiler casing to opening in B6 (including the valve). 10/26/04 - Pad insulation was used to cover the valve and the elbow. Pads are not acceptable for this pipeline. Need to pad insulate the valve only and reinsulate the line from the valve through the elbow to the B6 deck penetration.	Incomplete 10/18/04 Inspected on 10/26/04 - Still incomplete (see previous column for details).
9	PO ₄ Supply Line	W B6	B6	Yes	Remove pad insulation on piping & valves @ drum	No repairs required. Reinsulate from check valve on B6 to Drum	Complete as of 10/18/04
10	CRH Inlet Vent	E/Ma B5	B5	Yes	Remove insulation between root valve and secondary valve	Clean off old insulation remnants on pipe with a wire brush. Reinsulate using Calsil w/ metal weather cover to second isolation valve. 10/26/04 - No change.	Incomplete 10/18/04 10/26/04 - No change...still incomplete!
11	N2 Line (2 sides)	W/Mi B4+	B4+	Yes	Remove insulation between root valve and secondary valve	No repairs required. Install a wire cage for PPE.	Complete as of 10/18/04
12	Economizer Recirc Line	E/Ma/Mi B4/B3/B2-B2	None	No	Remove insulation @ bottom elbow at level B4 to 45° elbow below B4. Remove insulation at 90 deg. elbow (Mi/B3) and on horiz and vertical run and from B3 down to B2-	Line and elbow at mauka-Ewa OK - reinsulated except for small portion of exposed Calsil between 90 and 45 elbows which needs weather proofing compound applied. Balance of exposed line has patches of spalling corrosion. UT readings ranged from 0.312" to 0.269. All above minimum but it was decided to replace the line from under B6 to B2-. Reinsulate line using Calcil w/ metal weather proof cover below B6 to 1/2 way on Ewa side of boiler. Install metal cage for PPE above B6 to Drum and from 1/2 way under B6 to economizer inlet header on B2-. Install a new isolation valve near drum @ B6.	Incomplete 3/1/21/03 No change 06/20/03 Complete as of 10/18/04
13	Main Steam Line to ERV	Ma B4	B4	Yes	Remove pads from root valve to end of pads	No repairs required. Reinstall insulating pads.	Complete as of 10/18/04
14	SSH (MS) Outlet Hdr Drain	Ma B3	B3	Yes	Remove insulation from root valve to just past 2nd 45 deg. elbow	No repairs required. Reinsulate isolation valve with insulating pads and line using Calsil w/ weatherproof metal cover.	Complete as of 10/18/04

Unit Cold\Pressurized Inspection List

No.	Description	Loc.	Loc. Of Root Valve	Isolat able	Instr. for Insul. Removal (Mrkd with Red Paint)	Required Repairs	Date of Completion
15	Econ Outlet Hdr Drain	E/Mi B3	B3	Yes	Remove insulation from root valve to just past 1 st 90 deg elbow and @ 4th 90 deg on line elbow beneath B3	No repairs required. Reinsulate using Calcil w/ metal weather proof cover.	Complete as of 10/18/04
16	Econ Inlet Hdr Drain	W/Mi B2-	B2-	Yes	Remove insulation from root valve to 1 st elbow after root valve	Inspect drain design and confirmed expansion is allowed via a packing box. Reinsulate using Calcil w/ metal weater proof cover.	Complete as of 10/18/04
At "B" Level Secondary Valves							
17	Economizer Inlet Drain	E B	B2-	Yes	Remove insulation above secondary Iso valve	Grind off flacky exfoliated FeO2 scale. Install expanded metal guard for PPE.	Incomplete 10/18/04 No change 10/26/04
18	PSH Outlet Hdr Drain (S2)	E B	B6	Yes	Remove insulation above secondary Iso valve	Grind off flacky exfoliated FeO2 scale. Install expanded metal guard for PPE.	Incomplete 10/18/04 No change 10/26/04
19	SSH Inlet Hdr Drain (S4)	E B	B6	Yes	Remove insulation above secondary Iso valve	Grind off flacky exfoliated FeO2 scale. Install expanded metal guard for PPE.	Incomplete 10/18/04 No change 10/26/04
20	Junction Hdr Drain (S5)	E B	B3	Yes	Remove insulation above secondary Iso valve	Grind off flacky exfoliated FeO2 scale. Install expanded metal guard for PPE.	Incomplete 10/18/04 No change 10/26/04
21	PSH Inlet Hdr Drain (S1)	E B	B3+	Yes	Remove insulation above secondary Iso valve	Grind off flacky exfoliated FeO2 scale. Install expanded metal guard for PPE.	Incomplete 10/18/04 No change 10/26/04
Other							
22	Safety Valve Vents	W/E/Ma B6+,B6, B5		No	Strip insulation off all Safety Valve Vents	Vent on Waikiki side (B6) needs cleaning up (spalling corrosion - do not reinsulate. Paint where insulation used to cover. Two vents on mauka side to to be cleaned up - put bands around thin rings(B6). Paint where insulation covered. Ewa vent - paint (B6).	Incomplete 1/21/03 No change 06/20/03 No change 10/18/04 No change 10/26/04

Kahe 5 Notes-

* Padded insulation on the drain lines (Items 3, 5, 6, and 9) has been removed. Condition inspection can be done at anytime. Balance of insulation prior to or during the two-week outage beginning 8/23/02. Any repairs should be done during this period.

Note: Preliminary condition inspection 8/14/02 on Item 6. CRH Inlet Header drain indicates a very suspect line and should be replaced.

Kahe Legend:

R = right (Waianae)
L = left (EWA)
F = front (mauka)
B = back (makai)

Waiau Legend:

W = Waikiki side
E = Ewa side
Ma = Mauka end
Mi = Makai end

Predictive Maintenance Program at HECO

Predictive Maintenance (PDM) acquires and uses condition-based information to determine the health of our machinery and equipment. It uses data from many various sources, including diagnosis made by testing equipment, maintenance history, operator logs, and design information, to determine when work is needed on generating units and their components. While it is impossible to totally eliminate unplanned outages and breakdowns, an effective PDM program can identify potential problems and minor faults early before they result in unplanned equipment shut down or catastrophic failure for the equipment that are monitored in the program.

Benefits include better running and more reliable equipment, extending equipment longevity before replacement is required, improved planning and scheduling of limited resources, cost effectiveness, and reduced equipment outage duration.

Also, unanticipated breakdown maintenance work which disrupts planning and scheduling of resources is minimized and the scope of maintenance resulting from predictive analysis is more manageable, cost effective and responsive. The early warning nature of a PDM program enables better planning and scheduling of work.

The HECO Predictive Maintenance program started as an informal approach to understand the concept of PDM when it was first introduced as a best practice by EPRI back in December 1997 via a PDM Workshop. In 1998, EPRI conducted a comprehensive PDM Plant Assessment for the Waiau Station and provided a final implementation report in December 1998. The report provided many recommendations on how to implement a successful PDM program at Waiau.

Initially, a Maintenance Engineer was assigned as the PDM Coordinator to lead the project. In June 1998, one person from Operations and one from the electrical craft volunteered to temporarily fill the PDM Specialist positions for six months. After showing some early progress and success with identifying equipment problems, two permanent PDM Specialist positions were created in December 1999 and a third position added in late 2000. In January 2001, a PDM Supervisor position was created to permanently fill the PDM coordinator role and oversee the PDM Specialists. The need to add additional personnel was required due to the expanding role that this group was taking on. Following our initial success at Waiau, the PDM process was slowly expanded to apply PDM techniques and monitor critical equipment at our Kahe and Waiau stations. Limited work was also being accomplished at our sister utilities HELCO and MECO.

The initial PDM program started with a limited use of technologies. This was done by choice to slowly gain experience and build confidence in the process. Vibration analysis, lube oil monitoring and infrared thermography were the initial tools utilized to monitor our critical machines. Although very effective, it was quickly realized that additional monitoring tools/techniques would be needed to find the different types of problems in our many different types of machines. Since then, we have implemented the following technologies/techniques to cover additional equipment and catch other types of problems:

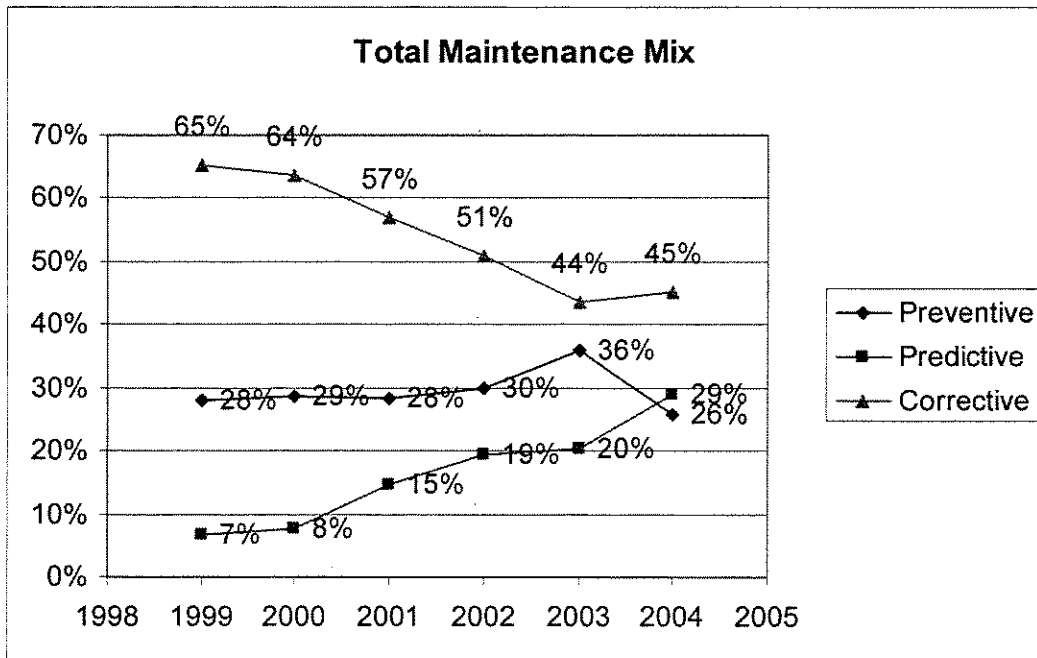
- On-line and off-line motor monitoring
- Transformer monitoring using dissolved gas analysis and Doble testing
- Generator rotor monitoring using flux probe testing
- Expanded pump performance testing
- Acoustic monitoring of bearings, valves, compressed air systems and pumps
- Helium detection to find air in-leakage into our condensers
- Feedwater heater and condenser monitoring using eddy current testing

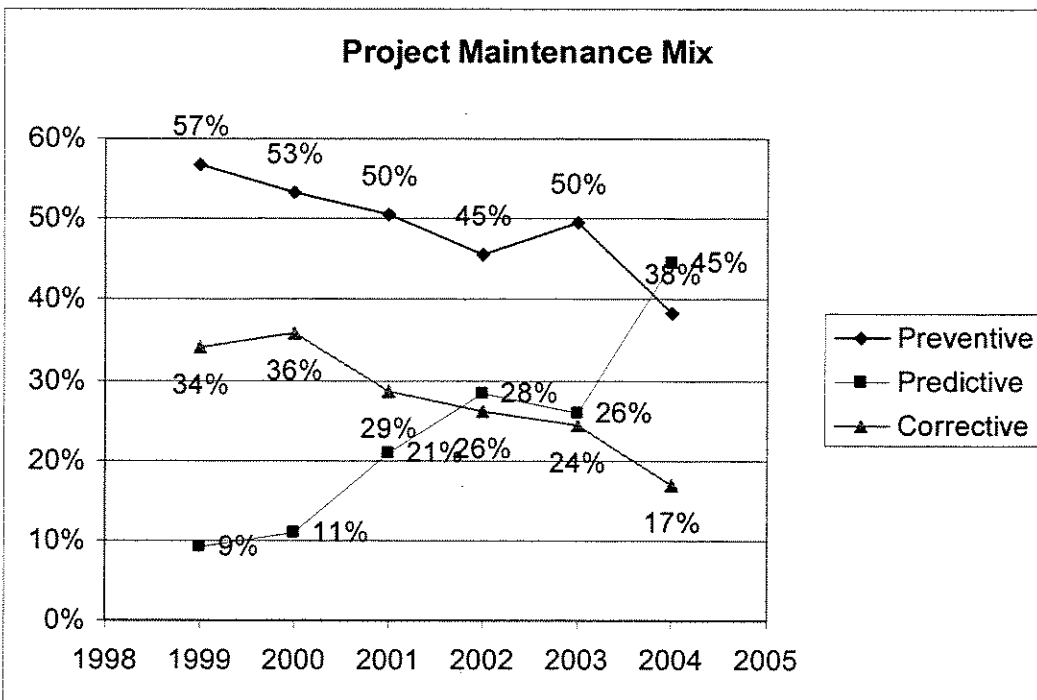
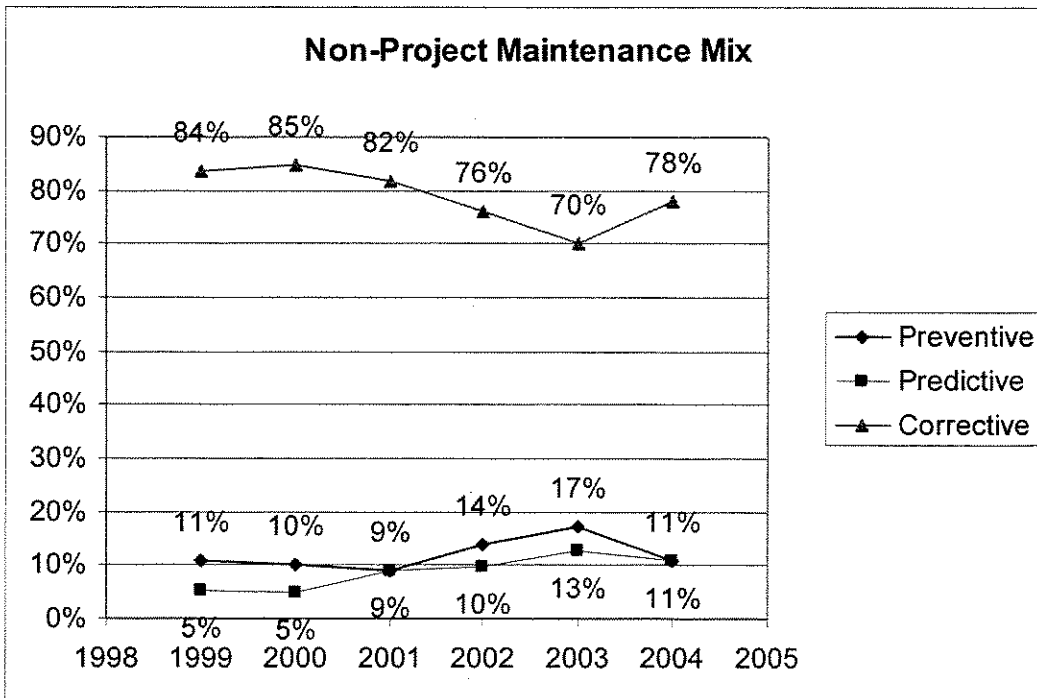
We are now able to apply multiple technologies to our critical equipment to ensure that most of the common failure modes can be detected and problems identified early enough to avoid catastrophic failure.

To address the increasing number of boiler tube failures, a formal Boiler Reliability Optimization (BRO) program was initiated in 1999 in accordance with the recommendations in the PDM Implementation report to address our critical boiler assets. This program consisted of the following sub-programs:

- Boiler Tube Failure Reduction (BTFR) Program
- Cycle Chemistry Improvement (CCI) Program
- Root Cause Failure Analysis
- Streamlined Reliability Centered Maintenance (SRCM)
- Boiler Remaining Useful Life surveys and High Energy Line monitoring

A permanent BRO Engineer position was filled in January 2001 to lead this project. This position resided within the PDM Group. The main purpose of this program was to apply predictive monitoring and root cause analysis techniques to our boilers and boiler components to ensure that these aging but highly critical assets would be reliable and available for as long as they were needed. The success of these programs on our boiler assets have been shown through the monitoring of performance indicators and EPRI benchmarking.





**CORRECTIVE, PREVENTIVE, PREDICTIVE
MAINTAIN PLANT SYS & EQUIP COST (O&M, Capital, Charges to Clearing)
YEAR 1999**

<u>NonProject</u>	<u>\$ YTD 12/99</u>	<u>% YTD 12/99</u>
Corrective	9,527,920	84%
Preventive	1,241,057	11%
Predictive	607,118	5%
Total	11,376,095	100%

<u>Project</u>	<u>\$ YTD 12/99</u>	<u>% YTD 12/99</u>
Corrective	2,278,175	34%
Preventive	3,806,791	57%
Predictive	608,879	9%
Total	6,693,845	100%

<u>NP + P</u>	<u>\$ YTD 12/99</u>	<u>% YTD 12/99</u>
Corrective	11,806,095	65%
Preventive	5,047,848	28%
Predictive	1,215,997	7%
Total	18,069,940	100%

**CORRECTIVE, PREVENTIVE, PREDICTIVE
MAINTAIN PLANT SYS & EQUIP COST (O&M, Capital, Charges to Clearing)
YEAR 2000**

<u>NonProject</u>	<u>\$ YTD 12/00</u>	<u>% YTD 12/00</u>
Corrective	11,451,000	85%
Preventive	1,352,829	10%
Predictive	679,228	5%
Total	13,483,057	100%

<u>Project</u>	<u>\$ YTD 12/00</u>	<u>% YTD 12/00</u>
Corrective	3,655,193	36%
Preventive	5,430,567	53%
Predictive	1,126,008	11%
Total	10,211,768	100%

<u>NP + P</u>	<u>\$ YTD 12/00</u>	<u>% YTD 12/00</u>
Corrective	15,106,193	64%
Preventive	6,783,396	29%
Predictive	1,805,236	8%
Total	23,694,825	100%

**CORRECTIVE, PREVENTIVE, PREDICTIVE
MAINTAIN PLANT SYS & EQUIP COST (O&M, Capital, Charges to Clearing)
YEAR 2001**

<u>NonProject</u>	<u>\$ YTD 12/01</u>	<u>% YTD 12/01</u>
Corrective	10,332,574	82%
Preventive	1,153,121	9%
Predictive	1,125,270	9%
Total	12,610,965	100%

<u>Project</u>	<u>\$ YTD 12/01</u>	<u>% YTD 12/01</u>
Corrective	3,127,532	29%
Preventive	5,536,931	50%
Predictive	2,305,177	21%
Total	10,969,640	100%

<u>NP + P</u>	<u>\$ YTD 12/01</u>	<u>% YTD 12/01</u>
Corrective	13,460,106	57%
Preventive	6,690,052	28%
Predictive	3,430,447	15%
Total	23,580,605	100%

**CORRECTIVE, PREVENTIVE, PREDICTIVE
MAINTAIN PLANT SYS & EQUIP COST (O&M, Capital, Charges to Clearing)
YEAR 2002**

<u>NonProject</u>	<u>\$ YTD 12/02</u>	<u>% YTD 12/02</u>
Corrective	10,117,196	76%
Preventive	1,826,076	14%
Predictive	1,314,353	10%
Total	13,257,625	100%

<u>Project</u>	<u>\$ YTD 12/02</u>	<u>% YTD 12/02</u>
Corrective	3,608,644	26%
Preventive	6,260,769	45%
Predictive	3,902,319	28%
Total	13,771,732	100%

<u>NP + P</u>	<u>\$ YTD 12/02</u>	<u>% YTD 12/02</u>
Corrective	13,725,840	51%
Preventive	8,086,845	30%
Predictive	5,216,672	19%
Total	27,029,357	100%

**CORRECTIVE, PREVENTIVE, PREDICTIVE
MAINTAIN PLANT SYS & EQUIP COST (O&M, Capital, Charges to Clearing)
YEAR 2003**

<u>NonProject</u>	<u>\$ YTD 12/03</u>	<u>% YTD 12/03</u>
Corrective	10,265,592	70%
Preventive	2,541,466	17%
Predictive	1,849,127	13%
Total	14,656,185	100%

<u>Project</u>	<u>\$ YTD 12/03</u>	<u>% YTD 12/03</u>
Corrective	4,961,898	24%
Preventive	10,075,521	50%
Predictive	5,278,479	26%
Total	20,315,898	100%

<u>NP + P</u>	<u>\$ YTD 12/03</u>	<u>% YTD 12/03</u>
Corrective	15,227,490	44%
Preventive	12,616,987	36%
Predictive	7,127,606	20%
Total	34,972,083	100%

**CORRECTIVE, PREVENTIVE, PREDICTIVE
MAINTAIN PLANT SYS & EQUIP COST (O&M, Capital, Charges to Clearing)
YEAR 2004**

<u>NonProject</u>	<u>\$ YTD 12/04</u>	<u>% YTD 12/04</u>
Corrective	13,150,014	78%
Preventive	1,858,961	11%
Predictive	1,820,393	11%
Total	16,829,368	100%

<u>Project</u>	<u>\$ YTD 12/04</u>	<u>% YTD 12/04</u>
Corrective	3,304,411	17%
Preventive	7,497,881	38%
Predictive	8,723,678	45%
Total	19,525,970	100%

<u>NP + P</u>	<u>\$ YTD 12/04</u>	<u>% YTD 12/04</u>
Corrective	16,454,425	45%
Preventive	9,356,842	26%
Predictive	10,544,071	29%
Total	36,355,338	100%

CA-IR-13

Ref: Electronic Workpaper Files Submitted by HECO.

The Company provided certain electronic spreadsheet files titled, Copy of Hours Extract.xls, heco2005 datafile (nonlabor), and heco 2005 datafile (labor), which contained actual data for the years 1999 through 2003, budget data for 2004 and budgeted data for 2005 (test year). Please append 2004 actual data throughout each of these electronic files and provide such updates in electronic media.

HECO Response:

The electronic file with the requested information will be provided under separate transmittal.

CA-IR-14

Ref: T-1, page 25, lines 2-9.

- a. Does HECO intend to employ the same annual budget for operational purposes in 2005 that

~~was developed and filed with the PUC for rate case purposes?~~

- b. If your response is anything but an unqualified "yes," please identify and describe each different type of budget that is developed in the normal course of business and explain the differences between HECO's 2005 rate case budget and each of its other 2005 operating budget(s).

HECO Response:

- a. The starting point for the 2005 O&M expense estimates that were filed with the PUC for rate case purposes was the 2005 annual budget that was initially developed in 2003 and reviewed and revised in early 2004. As addressed in HECO T-1, pages 24-27, HECO T-13,

~~pages 2-5 and HECO T-18, pages 15-17, the following types of adjustments generally were~~

the development of the test year estimates, to become the 2005 operating budget:

- Updated preliminary pension estimates. Note that the pension estimate for the rate case will be finalized and transmitted to the parties in June 2005 (as indicated in HECO's May 5, 2005 transmittal to the Consumer Advocate, Department of Defense and the Commission), and incorporated in HECO's next calculation of revenue requirements, which are generally calculated when rebuttal estimates are updated,
- Broadband over Power Lines (BPL) expenses, for which the Company is not currently seeking cost recovery, and
- Adjustments for then known changes such as additional staffing of \$1,930,000 (less \$490,000 representing the lag in the hiring process for the additional staffing, for a net addition of \$1,440,000), and higher lease rent expense of \$430,000 for office space in the Pauahi Tower, offset by a reduction of \$3,694,000 for consideration of a lag in the hiring process for positions included in the updated 2005 budget (even with the lag, the 2005 yearend employee count is still assumed to be attained). The adjustment for hiring lag started with a projected 2004 year-end employee count and assumed that positions would be filled evenly throughout 2005 to get to the year-end budgeted employee count. Since the budget reflected most positions being filled at the beginning of the year, the difference in monthly employee count resulted in lower costs and is referred to as the "hiring lag adjustment."

As part of the process, other non-labor expense increases, in addition to the rent

increase totaling \$1,000,000 were identified and allowed to be spent but it was

related to the pre-employment and post-offer process, employment issues, labor relations, executive training, safety programs (including safety glasses, safety breakfasts, defibrillator supplies, training for recertification, physicals, fire protection), care of buildings and grounds, security, facilities, software interface costs, annual and SOX 404 audit fees, and HEI fees.

Management was concerned that revenues would not be able to support the level of spending in the budget because rate relief was expected to begin no earlier than in the fourth quarter of 2005. An unspecified target reduction of \$1,193,000 was made to reflect an assumed reduction in spending in the short run, keeping in mind that it is in the interest of its customers for management to keep earnings from falling too far. The target reduction was allocated to the process areas (and some process areas further allocated their target adjustments to their departments) based on each process area's O&M budget adjusted for specific items such as the hiring lag. Each process area was given discretion as to how to achieve the reduction, as long as safety, reliability and service were not put at risk. Attached is a summary of the 2005 O&M Budget, excluding DSM/IRP expenses and BPL expense, including the allocation of the target adjustment to the process areas.

While referred to as a "target adjustment", the "target" does not represent a mandatory reduction in spending, and the Company recognizes that it may not be achieved, as the Company will do what needs to be done to provide safe and reliable service. For example, once a generating unit is opened and the overhaul is fully underway, it is possible that the length and costs of the overhaul will be longer and higher than originally budgeted. As a result of a longer than expected unit outage,

the overhaul schedule for the rest of the year will need to be revised. These types of changes in circumstances tend to result in higher expenses as indicated in the response to CA-IR-242 where the budget and “target” for the Production O&M Department are \$57,000,920 and \$54,655,000, respectively. However, despite its target, as of April 1, 2005, the Production O&M Department projected spending \$57,360,000 primarily due to a revised generating unit overhaul schedule.

As the year progresses, there are generally changes to the budget as cost estimates are firmed up and/or circumstances change, as described above and identified in other IR responses. Significant known changes affecting the test year estimates or relevant to IR responses, such as changes in the generating unit overhaul schedule, the elimination of CHP costs, the addition of substation DG costs, and updated plant addition estimates, have been provided in HECO’s May 5, 2005 transmittal to the Consumer Advocate, Department of Defense and the Commission, and in the responses to IRs.

- b. See response to a. above.

Hawaiian Electric Company, Inc.

2005 O&M Budget (Allocation based on Adj. 2005 Budget w/o DSM/IRP and BPL)

VP	2005 Updated Budget	Even Hiring Lag	Labor		Rent	2005 Budget Before Target Allocation	Allocate Target Adj	New 2005 O&M Budget w/o DSM/IRP and BPL
			Additions	Less Lag				
Corp Exc	38,297,610	(69,640)	177,500		430,000	38,835,470	(242,433)	38,593,037
Corp Rel	1,883,752	(48,751)	-		-	1,835,001	(11,455)	1,823,546
Cust Solutions	4,024,958	(511,602)	329,000		-	3,842,356	(23,986)	3,818,370
En Del	33,587,185	(423,653)	-		-	33,163,532	(207,025)	32,956,507
En Sol	5,398,112	(68,218)	212,500		-	5,542,394	(34,599)	5,507,795
FinVP	22,255,822	(173,416)	44,188		-	22,126,594	(138,127)	21,988,467
GenCounsel	2,286,103	(28,097)	-		-	2,258,006	(14,096)	2,243,910
Govt&Comm	2,410,573	(67,717)	163,250		-	2,506,106	(15,645)	2,490,461
Misc	-35,978,530	-	-		-	(35,978,530)	-	(35,978,530)
Operations	15,105,375	(209,684)	-		-	14,895,691	(92,987)	14,802,704
Pres	3,581,033	-	87,500		-	3,668,533	(22,901)	3,645,632
PubAffairs	1,100,256	(18,754)			-	1,081,502	(6,751)	1,074,751
Pwr Sup	63,045,965	(2,074,230)	181,250		-	61,152,985	(381,751)	60,771,234
Sp Projects	0	-	244,900		-	244,900	(1,529)	243,371
Total	156,998,214	(3,693,762)	1,440,088		430,000	155,174,540	(1,193,285)	153,981,255

CA-IR-14

DOCKET NO. 04-0113

PAGE 5 OF 5

CA-IR-15

Ref: T-1, page 25, lines 16-25.

Please provide complete copies of all documents developed and circulated among HECO employees to inform them of common budget assumptions to be employed in the development of the rate case projections.

HECO Response:

The requested information is provided in HECO's response to CA-IR-8.

CA-IR-16

Ref: T-1, page 18, line 14.

Please identify and describe each of the Company's "operating plan" iterations that were developed or employed during 2001 through 2004 to-date, and provide the following information regarding each such "plan:"

- a. A complete copy of the "operating plan."
- b. A statement of the "specific sales forecast and [a] level of O&M expenses" within each such "plan."
- c. Identify the known reasons for differences in each new "operating plan" relative to the

Account Block	2001	2002	2003
Prod Oper	\$19,746	\$21,700	\$20,312
Prod Maint	\$21,161	\$19,844	\$21,908
Transmission Oper	\$3,898	\$3,669	\$3,000
Transmission Maint	\$4,871	\$4,994	\$4,119
Distribution Oper	\$7,377	\$7,387	\$8,195
Distribution Maint	\$11,457	\$9,688	\$10,511
Customer Accounts	\$11,683	\$10,528	\$10,612
Customer Services	\$9,766	\$9,855	\$10,093
A & G Operation	\$28,543	\$27,034	\$48,714
A & G Maint	\$523	\$628	\$473
Total	\$119,025	\$115,327	\$137,937

- b. See item a. above for the O&M expense budget for 2001 through 2004. The GWH sales forecast for 2001 through 2004 are as follows:

2001	7314.1
2002	7352.1
2003	7537.5
2004	7734.5

- c. The information requested is not available.
- d. The information requested is not available; however, see the response to CA-IR-9 for the employee count forecast for the years 2001 through 2004.
- e. Explanations for the number of unfilled employee vacancies are not available; however, see the response to CA-IR-9 for information that could be viewed as the number of unfilled vacancies.

CA-IR-17

Ref: HECO 106 Proposed Rate Schedules.

Please provide the Company's proposed rate schedules in electronic Word format, indicating by "track changes" or other editing markups each change being proposed to the existing tariffs.

HECO Response:

See electronic Word file named "ATTACHMENT_TO_CA_IR_17.doc for HECO's proposed rate schedules with track changes to the Company's existing rate schedules.

CA-IR-18

Ref: HECO 108 Proposed Rule Sheets.

Please provide the Company's proposed rules in electronic WORD format, indicating by "track changes" or other editing markups each change being proposed to the existing rules.

HECO Response:

See electronic Word file named "ATTACHMENTS_TO_CA_IR_18_AND_19.doc for HECO's proposed Rule No. 4 with track changes to the Company's existing Rule No. 4.

CA-IR-19

Ref: HECO 110 Proposed Rule No. 7 Changes.

Please provide the Company's proposed Rule 7 pages in electronic Word Format, indicating by "track changes" or other editing markups each change being proposed to the existing Rule 7.

HECO Response:

See electronic Word file name "ATTACHMENTS_TO_CA_IR_18_AND_19.doc for HECO's proposed Rule No. 7 with track changes to the Company's existing Rule No. 7.

CA-IR-20

Ref: T-1, page 19, line 14.

According to the testimony, “HECO is slowly getting back to an optimal staffing level.” Please provide the following information:

- a. Explain and quantify precisely how many employees within each department of HEI and HECO represent “an optimal staffing level.”
- b. Identify and describe all efforts by HECO to determine its optimal staffing.
- c. Provide complete copies of all studies, analyses, workpapers, projections, reports and other documents associated with HECO’s efforts to determine “optimal staffing levels.”
- d. State with specificity the “certain work [that] will not get done” or that has not gotten done with less than optimal staffing (line 13).
- e. Provide statistical information indicating how far HECO’s staffing has departed from “optimal levels” and illustrating the progress made to-date in “getting back to an optimal staffing level.”

HECO Response:

- a. HECO has provided a significant amount of information concerning its “optimal staffing level” in HECO’s direct testimonies (see for example, the direct testimonies concerning O&M expenses). HECO also has responded to numerous specific information requests regarding its staffing levels, including how HECO determined its optimal staffing levels, and staffing level data for HEI. For example, “optimal staffing levels” are discussed in the voluminous responses to CA-IR-1 (7 volumes), and responses to CA-IR-48.a, -176.a, -482, 483 and -486.c.

In addition, HECO has provided data showing HECO’s actual employment count from early 2005 going back to 2000. For example, HECO provided employee count data in response to

CA-IR-9, -48.f, -71, -298, -508, -509, -510.b, -600, -601, -602, and -657. As of May 31, 2005, HECO's employee count was 1,441.

HECO objects to providing copies of "all studies, analyses, workpapers, projections, reports and other documents associated with HECO's efforts to determine 'optimal staffing levels'" as such a request is overly broad and unduly burdensome to the extent it requests "all" such identified categories of documents and "other documents", and vague and ambiguous to the extent it requests "other documents".

- a. See response to subpart a.
- b. See response to subpart a.
- c. HECO has provided a significant amount of information concerning the "'certain work [that] will not get done' or that has not gotten done with less than optimal staffing" in HECO's responses to numerous specific information requests regarding such subjects. For example, such subjects are discussed in responses to CA-IR-48.g, -59.b., c., -60.a, -61.a, -62.a, -70.b, -77.a, -173, -174, and -175.
- d. See response to subpart a.

CA-IR-21

Ref: T-1, page 19, line 11.

The referenced testimony states “[h]owever, such reduction in the level of spending and unfilled positions can not continue for an indefinite period of time.” Please respond to the following:

- a. Specifically state and quantify which spending reductions and which unfilled positions cannot be sustained.
- b. Identify and describe with specificity each known instance where service quality has

suffered, maintenance has been deferred, customer demands have been unmet or other negative conditions have arisen as a result of HECO cost reductions or unfilled positions.

- c. Provide complete copies of all studies, projections, analyses, workpapers, reports, correspondence and other documents associated with your response to part (b) of this information request.

HECO Response:

- a. At the outset it should be noted that HECO is mindful of producing and delivering a reliable supply of electricity when and where its customers need it, in a safe manner, and at reasonable prices. HECO continually strives to achieve improvements in efficiency and productivity and reflects them in its budgeted work force requirements and non-labor costs. See, for example, response CA-IR-12. However, HECO should not be expected to maintain any continuing budget austerity plans, ongoing hiring constraints or any other spending limitations in an effort to promote operational efficiency and minimize the burden of rate increases upon ratepayers. HECO may institute budget austerity plans, hiring constraints, and other spending limitation in times of economic uncertainty, while not compromising

HECO has not quantified the “spending reductions” that cannot be sustained, but has identified the spending increases that have already been made, and the additional increases that it plans to make in 2005, in the testimonies and IR responses of its witnesses. HECO has presented the testimonies of numerous employees involved in managing and supervising the activities in the various process areas, who explain in detail the reasons for the test year expense levels, and the bases for the expense levels. As is briefly stated in the response to CA-IR-268, these expenses are driven by the work required by the various process areas to operate and maintain power plants, to negotiate and administer power purchase agreements, to operate and maintain the transmission and distribution systems, to meter and bill customers and respond to their service inquiries, to provide energy services to customers, to help customers use electricity more wisely and efficiently, to comply with accounting, financial disclosure, environmental, regulatory and legal requirements, to address community concerns, to acquire the capital required to finance the utility’s facilities and equipment, and to manage and supervise the utility’s employees and contractors. In addition, HECO discussed the operational impact of these “spending reductions”. For example, HECO discussed the work that was not performed “as a result of HECO cost reductions or unfilled positions” in the testimony of the various O&M witnesses and in responses to specific IRs that included CA-IR-1, -2, -48.g, -59.b and c, -60.a, -61.a, -62.a, -67, -70.b, -77.a, -173, -174, and -175.

With respect to staffing levels that cannot be sustained, while HECO has not attempted to “quantify” the unfilled positions that cannot be sustained, HECO provided significant information concerning HECO’s staffing level for the test year, including comparisons to prior years’ staffing levels. For example, see voluminous response to CA-IR-1, and

responses to CA-IR-9, -20, -48.a and f, -71, -176.a, -482, -483, -486.c, -508, -510.b, -601, -602, and -657.

- b. Please see the response to subpart a.
- c. HECO objects to providing copies of “all studies, projections, analyses, workpapers, reports, correspondence and other documents associated with” the work that was not performed “as a result of HECO cost reductions or unfilled positions” as such a request is overly broad and unduly burdensome in that it requests copies of “all” such specified documents and vague and ambiguous to the extent that it requests “other documents”. However, without waiving any objections, please see the response to subpart a.

HECO's 2003 and 2004 billed Monthly Revenue by Summary Rates (REV510) are voluminous and therefore one copy each will be provided to the Consumer Advocate and the Public Utilities Commission under separate transmittal. (There are no electronic copies of this report.) The Energy Cost Adjustment Clause (ECAC) revenue amounts in the REV510 reports are identified as "FOA" and "FOE" in the "Base/Adj Schedule" column. The REV510 summarizes revenues received during the billing month and is the summation of customer bills in all 21 residential

Due to the voluminous nature of the information, one copy (pages 2 to 128) will be provided to the Consumer Advocate and the Public Utilities Commission under separate transmittal.

CA-IR-23

Ref: HECO-205, HECO-207, HECO-209, HECO-211 and HECO-213.

For **each** of the referenced Exhibits, please provide the following information:

- a. Provide the Exhibits in electronic Excel format, with all formulae intact and linked spreadsheets. An integrated set of spreadsheets is desired that will replicate all calculations performed.
- b. Include in your response to part (a) of this information request the updated calendar year 2004 data in each column in place of the April year-to-date information.
- c. Provide Weather Normalized Use/Average Customer and Billed Sales in each year 2000, 2001, 2002, 2003 and 2004.
- d. Provide degree day data and algorithms employed to determine the response to part (b) of this information request in each year 2000, 2001, 2002, 2003 and 2004.
- e. Please calculate and compare the proposed KWh usage per average customer in HECO-201 to the response in part (c) of this information request and explain the known reasons for any significant variances between recent actual normalized usage per customer and the Company's proposed test year levels of same.

HECO Response:

- a. The referenced exhibits will be provided electronically in MS Excel format on a diskette labeled CA-IR-23 under separate transmittal in a file named *PKWHGRW CA-IR-23.XLS*.
- b. The data provided in response to part (a) above has been updated to include 2004 data.
- c. The weather normalized use/average customer and billed sales for 2000 – 2004 are shown in pages 4 – 13 of HECO's response to CA-IR-23. The pages will also be provided electronically in MS Excel format on a diskette labeled CA-IR-23 under separate transmittal in a file named *PWXNORMGRW CA-IR-23.XLS*.
- d. The degree day data and algorithms employed to determine the weather normalized billed sales provided in response to part (c) above will also be provided electronically in MS Excel format on a diskette labeled CA-IR-23 under separate transmittal in a file named

PWXBLDSL CA-IR-23.XLS.

- e. The calculations of the use per customer using the proposed test year sales and customers shown in HECO-201 are included on pages 4 – 13 of HECO's response to CA-IR-23.

The comparison of test year estimates for Schedule R with recent history is shown on page 4. Schedule R use per customer decreases by 0.8% in the test year below the weather normalized 2004 use per customer. This is in comparison to the 2.4% growth experience in 2003 and 2004. The variance may be explained by the following reasons:

1. Lower interest rates began in 2002 and a strong real estate market contributed to strong use growth in 2002 and 2003. This growth continued into the beginning of 2004, but was expected to slow in the 2nd half of 2004. Residential use per customer growth was expected to stabilize as interest rates rose and because the increase in the previous two years had been so strong. The robust growth continued through much of 2004, however, as interest rates remained at historically low levels and the real estate market remained active. Weather normalized residential use per customer did finally begin to slow in the last two months of 2004 as seen on page 14 of HECO's response to CA-IR-23. (Page 14 will also be provided electronically in MS Excel format on a diskette labeled CA-IR-23 under separate transmittal in a file named *WX NORM RES USE CA-IR-23.XLS*.)
2. Implementation of customer efficiency programs is expected to continue in the test year, further decreasing projected sales by 13.1 GWh.
3. The test year estimates include the conversion of a Schedule P customer, Kukui Gardens, to individually metered Schedule R customers. The test year estimates include 700 customers with an average estimated use of 5,857 kWh per customer. The

conversion had been projected to start in 2004, but has been delayed until 2005.

The comparison of test year estimates for the sum of Schedules G, J, H, and P with recent history is shown on page 10. Commercial use per customer increases by 2.6% in the test year above the weather normalized 2004 use per customer. This is in comparison to the 0.8% growth experienced in 2004. The variance may be explained by the following reasons:

1. Commercial sales growth in 2004 did not meet the June 2004 sales update projections for 2004. April 2004 year-to-date weather normalized commercial sales growth was 2.0%. The June 2004 sales update expected the growth rate in the remaining months of 2004 to improve as the economy strengthened, especially with the rebound of international visitor arrivals. However, despite the improvements in the local economy, the actual weather normalized growth for 2004 remained at the 2.0% level.
2. The impact for certain large construction projects projected to begin in 2004 and continue to increase in 2005 did not materialize in 2004. In particular, the increase in sales expected from the Sand Island Wastewater Treatment Plant improvements and the UH medical school. These projects are now expected to increase loads later in 2005.

Hawaiian Electric Company, Inc.

GROWTH BY RATE SCHEDULE
SCHEDULE "R" - RESIDENTIAL SERVICE
Weather Normalized

Year	Average Customers			Use / Average Customer			Wx Norm Billed Sales		
	No.	Chg	% Chg	Kwh	Chg	% Chg	Gwh	Chg	% Chg
1999	241,167			7,649			1,844.6		
2000	243,511	2,344	1.0	7,782	133	1.7	1,894.9	50.3	2.7
2001	246,226	2,715	1.1	7,829	47	0.6	1,927.8	32.9	1.7
2002	248,765	2,539	1.0	8,012	183	2.3	1,993.2	65.4	3.4
2003	251,248	2,483	1.0	8,203	191	2.4	2,060.9	67.7	3.4
2004	253,670	2,422	1.0	8,397	194	2.4	2,130.0	69.1	3.4
2005 *	257,648	3,978	1.6	8,328	(69)	(0.8)	2,145.7	15.7	0.7

* Test year sales include future DSM

Source: *pkwhgrw ca-ir-23.xls* and *pwxbldsl ca-ir-23.xls*, and HECO-201

Hawaiian Electric Company, Inc.

GROWTH BY RATE SCHEDULE
SCHEDULE "G" - GENERAL SERVICE NON-DEMAND
Weather Normalized

Year	Average Customers			Use / Average Customer			Wx Norm Billed Sales		
	No.	Chg	% Chg	Kwh	Chg	% Chg	Gwh	Chg	% Chg
1999	23,274			14,157			329.5		
2000	23,605	331	1.4	14,366	209	1.5	339.1	9.6	2.9
2001	24,507	902	3.8	14,012	(354)	(2.5)	343.4	4.3	1.3
2002	24,710	203	0.8	14,136	124	0.9	349.3	5.9	1.7
2003	24,952	242	1.0	14,352	216	1.5	358.1	8.8	2.5
2004	25,245	293	1.2	14,379	27	0.2	363.0	4.9	1.4
2005 *	25,629	384	1.5	14,714	335	2.3	377.1	14.1	3.9

* Test year sales include future DSM

Source: *pkwhgrw ca-ir-23.xls* and *pwxbldsl ca-ir-23.xls*, and HECO-201

Hawaiian Electric Company, Inc.

**GROWTH BY RATE SCHEDULE
SCHEDULE "J" - GENERAL SERVICE DEMAND
Weather Normalized**

Year	Average Customers			Use / Average Customer			Wx Norm Billed Sales		
	No.	Chg	% Chg	Kwh	Chg	% Chg	Gwh	Chg	% Chg
1999	5,450			300,789			1,639.3		
2000	5,681	231	4.2	306,020	5,231	1.7	1,738.5	99.2	6.1
2001	6,147	466	8.2	300,504	(5,516)	(1.8)	1,847.2	108.7	6.3
2002	6,275	128	2.1	300,159	(345)	(0.1)	1,883.5	36.3	2.0
2003	6,390	115	1.8	300,407	248	0.1	1,919.6	36.1	1.9
2004	6,498	108	1.7	301,170	763	0.3	1,957.0	37.4	1.9
2005 *	6,680	182	2.8	301,931	761	0.3	2,016.9	59.9	3.1

* Test year sales include future DSM

Source: *pkwhgrw ca-ir-23.xls* and *pxxbldsl ca-ir-23.xls*, and HECO-201

Hawaiian Electric Company, Inc.

GROWTH BY RATE SCHEDULE
SCHEDULE "G, J, U, & D" - GENERAL SERVICE
Weather Normalized

Year	Average Customers			Use / Average Customer			Wx Norm Billed Sales		
	No.	Chg	% Chg	Kwh	Chg	% Chg	Gwh	Chg	% Chg
1999	28,724			68,542			1,968.8		
2000	29,286	562	2.0	70,942	2,400	3.5	2,077.6	108.8	5.5
2001	30,654	1,368	4.7	71,462	520	0.7	2,190.6	113.0	5.4
2002	30,985	331	1.1	72,061	599	0.8	2,232.8	42.2	1.9
2003	31,342	357	1.2	72,672	611	0.8	2,277.7	44.9	2.0
2004	31,743	401	1.3	73,087	415	0.6	2,320.0	42.3	1.9
2005 *	32,309	566	1.8	74,097	1,010	1.4	2,394.0	74.0	3.2

* Test year sales include future DSM

Source: *pkwhgrw ca-ir-23.xls* and *pwxblsl ca-ir-23.xls*, and HECO-201

Hawaiian Electric Company, Inc.

GROWTH BY RATE SCHEDULE
SCHEDULE "H/K" - COMMERCIAL COOKING, AIR CONDITIONING,
HEATING AND REFRIGERATION SERVICE
Weather Normalized

Year	Average Customers			Use / Average Customer			Wx Norm Billed Sales		
	No.	Chg	% Chg	Mwh	Chg	% Chg	Gwh	Chg	% Chg
1999	3,626			43,436			157.5		
2000	3,354	(272)	(7.5)	39,893	(3,543)	(8.2)	133.8	(23.7)	(15.0)
2001	2,879	(475)	(14.2)	30,497	(9,396)	(23.6)	87.8	(46.0)	(34.4)
2002	1,880	(999)	(34.7)	37,447	6,950	22.8	70.4	(17.4)	(19.8)
2003	1,384	(496)	(26.4)	44,509	7,062	18.9	61.6	(8.8)	(12.5)
2004	1,194	(190)	(13.7)	47,739	3,230	7.3	57.0	(4.6)	(7.5)
2005 *	1,042	(152)	(12.7)	51,248	3,509	7.4	53.4	(3.6)	(6.3)

* Test year sales include future DSM

Source: *pkwhgrw ca-ir-23.xls* and *pwxblsl ca-ir-23.xls*, and HECO-201

Hawaiian Electric Company, Inc.

**GROWTH BY RATE SCHEDULE
SCHEDULE "P" - LARGE POWER SERVICE
Weather Normalized**

Year	Average Customers			Use / Average Customer			Wx Norm Billed Sales		
	No.	Chg	% Chg	Mwh	Chg	% Chg	Gwh	Chg	% Chg
1999	369			8,192			3,022.7		
2000	361	(8)	(2.2)	8,469	277	3.4	3,057.2	34.5	1.1
2001	356	(5)	(1.4)	8,540	71	0.8	3,040.2	(17.0)	(0.6)
2002	355	(1)	(0.3)	8,507	(33)	(0.4)	3,019.9	(20.3)	(0.7)
2003	354	(1)	(0.3)	8,548	41	0.5	3,026.0	6.1	0.2
2004	354	0	0.0	8,664	116	1.4	3,067.0	41.0	1.4
2005 *	360	6	1.7	8,915	251	2.9	3,209.4	142.4	4.6

* Test year sales include future DSM

Source: *pkwhgrw ca-ir-23.xls* and *pwxbldsl ca-ir-23.xls*, and HECO-201

Hawaiian Electric Company, Inc.

GROWTH BY RATE SCHEDULE
TOTAL COMMERCIAL
Weather Normalized

Year	Average Customers			Use / Average Customer			Wx Norm Billed Sales		
	No.	Chg	% Chg	Kwh	Chg	% Chg	Gwh	Chg	% Chg
1999	32,719			157,370			5,149.0		
2000	33,001	282	0.9	159,650	2,280	1.4	5,268.6	119.6	2.3
2001	33,889	888	2.7	156,942	(2,708)	(1.7)	5,318.6	50.0	0.9
2002	33,220	(669)	(2.0)	160,238	3,296	2.1	5,323.1	4.5	0.1
2003	33,080	(140)	(0.4)	162,192	1,954	1.2	5,365.3	42.2	0.8
2004	33,291	211	0.6	163,528	1,336	0.8	5,444.0	78.7	1.5
2005 *	33,711	420	1.3	167,803	4,275	2.6	5,656.8	212.8	3.9

* Test year sales include future DSM

Source: *pkwhgrw ca-ir-23.xls* and *pwxbldsl ca-ir-23.xls*, and HECO-201

Hawaiian Electric Company, Inc.

GROWTH BY RATE SCHEDULE
SCHEDULE "F" - STREET LIGHTING
Weather Normalized

Year	Average Customers			Use / Average Customer			Wx Norm Billed Sales		
	No.	Chg	% Chg	Mwh	Chg	% Chg	Gwh	Chg	% Chg
1999	353			109			38.5		
2000	356	3	0.8	107	(3)	(2.4)	37.9	(0.6)	(1.6)
2001	366	10	2.8	100	(7)	(6.4)	36.5	(1.4)	(3.7)
2002	382	16	4.4	99	(1)	(0.7)	37.8	1.3	3.6
2003	392	10	2.6	100	1	1.3	39.3	1.5	4.0
2004	407	15	3.8	93	(7)	(6.9)	38.0	(1.3)	(3.3)
2005 *	406	(1)	(0.2)	99	6	6.0	40.3	2.3	6.1

* Test year sales include future DSM

Source: *pkwhgrw ca-ir-23.xls* and *pwxblsl ca-ir-23.xls*, and HECO-201

Hawaiian Electric Company, Inc.

**GROWTH BY RATE SCHEDULE
TOTAL COMMERCIAL (INCL F)
Weather Normalized**

Year	Average Customers			Use / Average Customer			Wx Norm Billed Sales		
	No.	Chg	% Chg	Kwh	Chg	% Chg	Gwh	Chg	% Chg
1999	33,072			156,855			5,187.5		
2000	33,357	285	0.9	159,082	2,227	1.4	5,306.5	119.0	2.3
2001	34,255	898	2.7	156,330	(2,752)	(1.7)	5,355.1	48.6	0.9
2002	33,602	(653)	(1.9)	159,541	3,211	2.1	5,360.9	5.8	0.1
2003	33,472	(130)	(0.4)	161,466	1,925	1.2	5,404.6	43.7	0.8
2004	33,698	226	0.7	162,680	1,214	0.8	5,482.0	77.4	1.4
2005 *	34,117	419	1.2	166,987	4,307	2.6	5,697.1	215.1	3.9

* Test year sales include future DSM

Source: *pkwhgrw ca-ir-23.xls* and *pxxbldsl ca-ir-23.xls*, and HECO-201

Hawaiian Electric Company, Inc.

TOTAL SYSTEM GROWTH

Weather Normalized

Year	Average Customers			Use / Average Customer			Wx Norm Billed Sales		
	No.	Chg	% Chg	Kwh	Chg	% Chg	Gwh	Chg	% Chg
1999	274,239			25,642			7,032.1		
2000	276,868	2,629	1.0	26,010	368	1.4	7,201.4	169.3	2.4
2001	280,481	3,613	1.3	25,966	(44)	(0.2)	7,282.9	81.5	1.1
2002	282,367	1,886	0.7	26,044	78	0.3	7,354.1	71.2	1.0
2003	284,720	2,353	0.8	26,220	176	0.7	7,465.5	111.4	1.5
2004	287,368	2,648	0.9	26,489	269	1.0	7,612.0	146.5	2.0
2005 *	291,765	4,397	1.5	26,881	392	1.5	7,842.8	230.8	3.0

* Test year sales include future DSM

Source: *pkwhgrw ca-ir-23.xls* and *pxwbldsl ca-ir-23.xls*, and HECO-201

Hawaiian Electric Company, Inc.

RESIDENTIAL USE PER CUSTOMER
Weather Normalized

	Wx Norm MWh Sales			Customers			Wx Norm Use/Customer			Use % Chg YOY	
	2002	2003	2004	2002	2003	2004	2002	2003	2004	2003	2004
Jan	167,140.5	174,390.3	182,178.5	248,060	250,384	253,130	674	696	720	3.4%	3.3%
Feb	150,786.0	160,623.6	168,279.7	247,722	250,128	252,587	609	642	666	5.5%	3.7%
Mar	155,631.2	163,477.3	166,261.1	248,160	250,661	253,502	627	652	656	4.0%	0.6%
Apr	162,201.4	159,786.1	169,966.5	248,466	250,688	253,152	653	637	671	-2.4%	5.3%
May	157,732.4	160,097.4	164,129.9	248,618	250,787	253,130	634	638	648	0.6%	1.6%
Jun	171,659.9	174,879.8	177,305.5	248,129	250,466	253,328	692	698	700	0.9%	0.2%
Jul	170,595.2	170,125.3	184,609.0	248,834	251,412	253,333	686	677	729	-1.3%	7.7%
Aug	171,491.1	180,097.1	184,776.0	248,628	250,927	253,883	690	718	728	4.1%	1.4%
Sep	176,143.2	184,327.8	195,679.4	249,384	252,167	254,959	706	731	767	3.5%	5.0%
Oct	173,014.2	179,704.9	189,333.1	249,565	252,096	253,878	693	713	746	2.8%	4.6%
Nov	169,204.6	182,615.6	178,970.1	249,721	252,230	254,365	678	724	704	6.9%	-2.8%
Dec	167,636.1	170,796.4	168,902.8	249,896	253,033	254,797	671	675	663	0.6%	-1.8%
Total / Avg	1,993,235.8	2,060,921.6	2,130,391.6	248,765	251,248	253,670	8,013	8,203	8,398	2.4%	2.4%

CA-IR-24

Ref: HECO T-2, Page 2, Line 22.

Please provide the following information regarding HECO's annual sales forecast and quarterly updates procedure:

- a. A complete copy of the most recent "annual sales forecast."
- b. A complete copy of the most recent "quarterly update."
- c. Does HECO intend to update its test year sales forecast?

Please explain and provide all documentation associated with your response to part (c) of this information request.

HECO Response:

[REDACTED]

CA-IR-25

Ref: T-3 Revenue Calculations.

Mr. Young describes in testimony his methods and the data employed to develop test year revenue estimates. Please provide complete copies of all electronic spreadsheet files (excel format) associated with all work performed, leaving cell references, formulae and links to other files intact. An integrated set of spreadsheets is desired that will replicate all calculations performed by Mr. Young.

HECO Response:

Electronic spreadsheet files for HECO-304 and HECO-WP-304 are available and have been provided to the Consumer Advocate on December 6, 2004 and January 31, 2005, respectively.

CA-IR-26

Ref: HECO 304 (8 pages) and HECO WP-304 (154 pages).

Please provide complete copies of all source data and spreadsheet files (excel format) underlying the determination of test year revenues and present rates and at proposed rates for each rate schedule, to the extent not contained in your response to the immediately preceding question. In addition please explain and provide documentation for each adjustment made to allocate sales among rate schedules and to adjust billing determinants from forecasted amounts.

HECO Response:

Electronic spreadsheet files for HECO-304 and HECO-WP-304 are available and have been provided. The 2005 test year sales and customers forecast for the combined total Schedule P in HECO-201 have been allocated to Schedules PS, PP, and PT, as shown in HECO-304. The basis for the allocation is the 2003 recorded sales and bills, as shown in HECO-WP-304, pages 105, 121, and 144 (these three workpapers are the same). The billing determinants shown in HECO-304 and HECO-WP-304 at proposed rates are the forecast amounts.

CA-IR-27

Ref: HECO 303 and HECO WP-303.

Please provide complete copies of all source data and spreadsheet files (excel format) underlying the determination of test year Other Operating Revenues at present rates and at proposed rates for each line item, indicating the methods employed to determine billing determinants for each line item.

HECO Response:

Electronic spreadsheet files for HECO-303 and HECO-WP-303 were provided to the Consumer Advocate on December 6, 2004. The estimate for late payment charges revenue is based on 0.1% of electric revenues, which is a historical average. The estimate of revenues from the payment protection program is based on the 2002-2003 average revenues net of expenses. The estimate for late payment charges – OCARS revenue is based on the average over years 1999-2003. The estimate for purchase power metering charges is based on \$25 per meter per month charges to power providers Tesoro and Chevron. The transaction counts shown in HECO-WP-303 at present rates are based on the average over years 1999-2003. The estimate of transaction counts for field collection charges at proposed rates is based on the historical average of 40% of all field calls are successful ($6,643 \div 40\% = 16,608$). The estimate of transaction counts for returned payment charges at proposed rates reflects the estimate of additional returned payments in the test year from forms of payments other than checks. The estimates of miscellaneous revenues shown in HECO-303 and HECO-WP-303, page 2 were provided by the Management Accounting department.

CA-IR-28

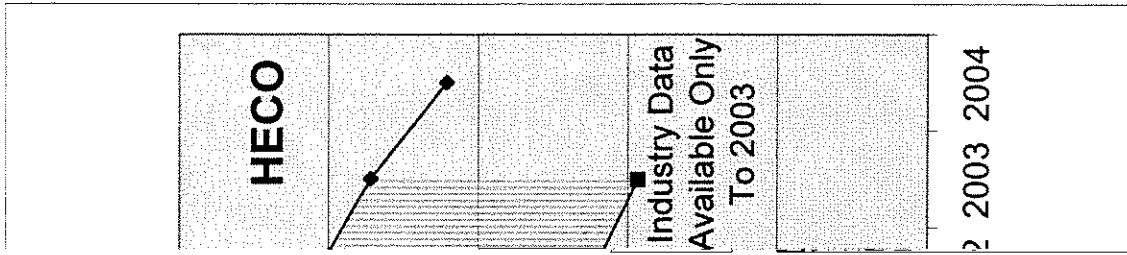
Ref: HECO 602 – Equivalent Availability.

Please provide detailed supporting calculations for the HECO data on the graph in all years, provide updated actual 2004 information and provide copies of the documentation supportive of the Industry data, including any updated Industry data now available for periods subsequent to 2002. Provide all data in hard copy and electronic (excel) format.

HECO Response:

Attached are the supporting documents for HECO-602. These include:

1. Attachment 1: HECO-602 updated to reflect actual 2004 data for HECO and 2003 Industry Data. [File: CA-IR-28 Attachment 1-EAF Chart.xls]
2. Attachment 2: An Excel spreadsheet with the calculation for all HECO-owned units. Please refer to the data for Equivalent Availability Factor for “Total Sys. (with CTs)”, on page 21. [File: CA-IR-28 Attachment 2-GenStats.xls]
3. Attachment 3: An Excel spreadsheet with the Generation Availability Reports data compiled from the North American Electric Reliability Council (NERC). This data is available to the public at <http://www.nerc.com>. The spreadsheet was used to derive the industry average EAF. [File: CA-IR-28 Attachment 3-NERC GAR.xls]



HECO & Industry EAF Statistics

	HECO	Industry
1990	91.85%	82.12%
1991	92.59%	85.58%
1992	92.53%	79.05%
1993	91.81%	84.71%
1994	91.63%	84.94%
1995	89.86%	85.14%
1996	90.92%	84.20%
1997	89.32%	83.74%
1998	92.37%	86.09%
1999	89.77%	85.13%
2000	91.58%	85.63%
2001	92.38%	82.24%
2002	90.44%	81.23%
2003	88.59%	79.66%
2004	86.05%	

Gen. Unit: H8

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
s.(MWH)	34490	2471	0	59464	0	533	4086	0	75	201	85	496	11782	8934	250
	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
IWH)	75175	12306	41816	20287	22816	44379	28696	38747	58778	73095	83175	83879	101955	78782	173770
	3114	564	1759	895	1030	1769	1148	1514	2223	2671	3092	3043	3841	3066	5695
S.	10912	2036	3836	6048	4652	3006	711	15	13328	34	1093	1045	0	1145	4526
H)	34490	2471	0	0	0	533	4086	0	75	201	49	496	11782	8934	250
	98.0	35.7	98.4	91.0	85.6	99.4	95.9	77.2	80.8	88.0	95.1	92.5	99.8	77.6	98.9
pr	91.2	35.2	98.4	79.3	85.6	99.3	95.1	77.2	80.8	87.9	95.1	92.4	97.5	75.9	98.9
	14.8	2.4	8.2	4.0	4.5	8.7	5.6	7.6	11.5	14.4	16.4	16.5	20.0	15.5	34.2
	41.6	37.6	41.0	39.1	38.2	43.3	43.1	44.1	45.6	47.2	46.4	47.5	45.8	44.3	52.6
R)	23.7	13.0	3.6	10.4	7.2	3.4	7.1	0.0	9.4	0.2	0.6	0.9	5.3	5.6	1.4

Gen. Unit: H9

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	8757	6392	7724	8368	8536	8345	7716	7169	8133	8702	8094	8619	7575	8699	8760
Equiv. Derated Hrs.(MWH)	1161	19840	334	117	514	0	8131	219	370	952	9219	1461	213	0	589
MW Rating	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56
Net Generation (MWH)	112332	60505	67748	55662	47161	56352	29110	73305	105970	127513	86824	75366	77042	150881	298946
Service Hours	4534	2486	2693	2362	2027	2283	1161	2793	4104	4662	2802	2767	2741	5962	8750
Forced Outage Hrs. U1,U2,U3,SF (MWH)	1416	10578	4704	4106	1141	6242	241	0	200	436	2522	175	1386	456	0
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	1161	19840	213	117	514	0	4497	219	370	871	2838	1461	194	0	589
Availability Factor	100.0	73.0	88.2	95.5	97.2	95.3	88.1	81.8	92.6	98.3	92.4	98.4	86.2	99.3	100.0
Equiv. Avail. Factor	99.7	69.0	88.1	95.5	97.1	95.3	86.5	81.8	92.5	99.2	90.5	98.1	86.2	99.3	99.9
Capacity Factor	22.5	12.1	13.6	11.1	9.4	11.3	5.8	14.7	21.2	25.5	17.4	15.1	15.4	30.2	60.9
Output Factor	42.5	42.7	44.1	41.3	40.8	43.3	44.0	46.0	45.3	48.0	54.4	47.8	49.3	44.4	61.0
Equiv. Forced Outage Rate (EFOR)	1.0	20.0	3.1	3.0	1.4	4.6	7.1	0.1	0.2	0.5	3.3	1.0	1.0	0.1	0.1

Gen. Unit: W3

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	4580	8081	8484	8647	8529	7902	6940	7591	5911	7413	8298	8038	8028	8530	7747
Equiv. Derated Hrs.(MWH)	24600	10377	23	0	0	311	0	631	0	0	3952	15214	2647	60	6527
MW Rating	49	49	49	49	49	49	49	49	49	49	49	49	49	49	50
Net Generation (MWH)	50667	47195	35452	23118	57102	40196	11421	25417	-1350	-1944	-2178	16550	54761	56414	93623
Service Hours	2199	2205	1693	1170	2466	1786	605	1223	43	10	0	964	2806	3082	4262
Forced Outage Hrs. U1,U2,U3,SF (MWH)	5600	1610	5799	1115	2525	2461	59	556	0	0	25	293	10353	0	41320
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	22339	10377	0	0	0	311	0	286	0	0	0	15214	2647	60	6527
Availability Factor	52.3	92.2	96.8	98.7	97.1	90.2	79.2	86.7	67.3	84.6	94.7	91.8	91.4	97.4	88.4
Equiv. Avail. Factor	46.6	89.8	96.8	98.7	97.1	90.1	79.2	86.5	67.3	84.6	93.8	88.2	90.8	97.4	86.9
Capacity Factor	11.8	11.0	8.3	5.4	13.3	9.4	2.7	5.9	-0.3	-0.5	0.0	3.9	12.7	13.1	21.4
Output Factor	47.0	43.7	42.7	40.3	47.3	45.9	38.5	42.4	-64.1	-396.7	0.0	35.0	39.8	37.4	43.9
Equiv. Forced Outage Rate (EFOR)	24.6	10.9	6.5	1.9	2.0	3.1	0.2	1.4	0.0	0.0	100.0	32.6	8.8	0.0	18.8

Gen. Unit: W4

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	7897	8135	8543	7494	8674	7710	7286	8555	8720	8259	8725	7199	8720	7783	8698
Equiv. Derated Hrs.(MWH)	200	0	0	3013	0	108	0	362	0	33	1923	0	89	10027	0
MW Rating	49	49	49	49	49	49	49	49	49	49	49	49	49	49	50
Net Generation (MWH)	96949	65255	66504	20089	50421	49341	21727	47983	44040	27540	17535	24315	51863	57340	99191
Service Hours	4309	2923	2914	1009	2301	2309	1106	2290	2018	1349	805	1248	2526	2813	4196
Forced Outage Hrs. U1,U2,U3,SF (MWH)	32553	5026	7623	5064	3487	5237	248	223	1575	282	936	18230	3109	18613	1627
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	200	0	0	3013	0	108	0	235	0	33	1923	62	89	10027	0
Availability Factor	90.1	92.9	97.5	85.5	98.7	88.0	83.2	97.7	99.3	94.3	99.6	82.2	99.3	88.8	99.3
Equiv. Avail. Factor	90.1	92.9	97.5	84.8	98.7	88.0	83.2	97.6	99.3	94.3	99.2	82.2	99.3	86.5	99.3
Capacity Factor	22.6	15.2	15.5	4.7	11.7	11.5	5.1	11.2	10.2	6.4	4.1	5.7	12.0	13.4	22.6
Output Factor	45.9	45.6	46.6	40.6	44.7	43.6	40.1	42.8	44.5	41.7	44.5	39.8	41.9	41.6	47.3
Equiv. Forced Outage Rate (EFOR)	13.4	3.4	5.1	14.8	3.0	4.5	0.5	0.4	1.6	0.5	7.1	23.0	2.5	18.3	0.8

Gen. Unit: W5

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Mod Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	8021	6488	5973	8520	8566	7443	8470	8658	7942	8629	7484	8670	6589	8578	7958
Unavail. Derated Hrs.(MWH)	2662	92	3280	171	695	46	65	1439	26	19	1702	898	15122	2489	19283
Rating	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Generation (MWH)	138634	96980	77755	83794	89226	77877	59818	102333	220	95185	48013	88082	105964	144784	215739
Unavail. Hours	5817	4206	3556	3794	4049	3428	2733	4388	408	3944	1888	3600	3872	5273	6013
Unavail. Outage Hrs. (U3,SF (MWH))	870	10150	3813	1563	8617	4234	618	2761	1403	2525	1056	1787	2665	5093	11100
Unavail. Forced Outage Hrs (U3,D3 (MWH))	2446	92	723	171	69	46	0	1357	1	0	1702	898	15122	2489	3934
Availability Factor	91.6	74.1	68.2	97.3	97.5	85.0	96.7	98.8	10.4	98.5	85.4	99.0	75.0	97.9	90.8
Unavail. Avail. Factor	91.0	74.0	67.5	97.2	97.4	85.0	96.7	98.5	10.4	98.5	85.1	98.8	72.0	97.4	87.0
Capacity Factor	27.8	19.4	15.6	16.8	17.8	15.6	12.0	20.5	6.4	19.1	9.6	17.6	21.2	29.0	43.2
Output Factor	41.8	40.5	38.4	38.7	38.7	39.9	38.4	40.9	2.3	42.3	44.6	42.9	48.0	48.2	62.9
Unavail. Forced Outage Rate (EFOR)	1.0	4.1	2.2	0.8	3.6	2.1	0.4	1.6	0.7	1.1	2.5	1.3	8.0	2.5	4.2

Gen. Unit: W6

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	8282	8540	8339	7041	8571	7957	7116	8568	7095	7758	8196	7612	7729	7427	8671
Equiv. Derated Hrs.(MWH)	636	0	424	258	80	5688	376	619	418	195	6505	712	583	1227	1904
MW Rating	55	55	55	55	55	55	55	55	55	55	55	55	55	55	57
Net Generation (MWH)	166936	119157	141347	92481	111568	98914	67276	114396	101131	112528	95850	70686	91497	105244	195929
Service Hours	6255	4855	5175	3773	4734	4047	2938	4752	3885	4525	3673	3166	3921	4347	6207
Forced Outage Hrs. U1,U2,U3,SF (MWH)	605	7614	1391	8230	6040	6709	3506	1229	697	2341	8225	495	9412	3521	2333
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	494	0	424	258	0	5688	0	514	287	195	6505	712	583	1227	1904
Availability Factor	94.5	97.5	95.2	80.4	97.6	90.8	81.2	97.8	80.8	88.6	93.6	86.9	88.0	84.8	99.0
Equiv. Avail. Factor	94.4	97.5	95.1	80.3	97.6	89.7	81.2	97.7	80.7	88.5	92.2	86.7	87.9	84.5	98.6
Capacity Factor	34.6	24.7	29.3	19.2	23.1	20.5	14.0	23.7	20.9	23.4	19.9	14.7	18.9	21.8	39.2
Output Factor	48.5	44.6	49.7	44.6	42.8	44.4	41.6	43.8	47.3	45.2	47.4	40.6	42.4	44.0	55.4
Equiv. Forced Outage Rate (EFOR)	0.3	2.8	0.6	3.9	2.3	5.4	2.1	0.7	0.5	1.0	7.0	0.7	4.4	2.0	1.2

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Gen. Unit: W7

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	8371	7477	8436	8550	6730	8301	8341	6801	8467	8681	7736	8503	7384	8719	7280
Equiv. Derated Hrs.(MWH)	1006	1457	15552	11764	1490	12231	3843	11110	3823	6419	12380	3321	1996	1269	371
MW Rating	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
Net Generation (MWH)	454539	417858	532097	501658	362399	460748	532772	405272	502322	532456	457735	460439	424770	560419	516819
Service Hours	8377	7458	8346	8525	6725	8284	8324	6801	8219	8663	7659	8471	7296	8697	7279
Forced Outage Hrs. U1,U2,U3,SF (MWH)	8126	3941	4150	10408	2870	174	0	7998	1882	5744	1416	5491	41325	589	26441
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	1006	772	9236	1366	958	8346	731	9006	2330	2379	12233	3222	1912	1269	66
Availability Factor	95.6	85.4	96.3	97.6	76.6	94.8	95.2	77.6	96.4	99.1	88.3	97.1	84.1	99.5	83.1
Equiv. Avail. Factor	95.4	85.2	94.3	96.1	76.4	93.2	94.7	76.2	95.9	98.3	86.7	96.6	83.8	99.4	83.1
Capacity Factor	59.6	54.8	69.8	65.8	47.4	60.5	69.9	53.2	65.7	69.9	60.1	60.4	55.6	73.5	67.8
Output Factor	62.4	64.4	73.3	67.6	61.9	63.9	73.6	68.5	70.2	70.6	68.7	62.5	66.9	74.1	81.6
Equiv. Forced Outage Rate (EFOR)	1.2	0.7	1.8	1.6	0.7	1.2	0.1	2.8	0.6	1.1	2.0	1.2	6.4	0.2	4.0

Gen Unit: W8

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	6470	8628	8356	8420	6730	7811	8590	7647	8771	7653	8703	7555	8753	8614	7695
Equiv. Derated Hrs.(MWH)	18134	567	369	9157	15290	4113	2116	632	22005	400	2632	666	541	610	1053
MW Rating	90	90	90	90	90	90	90	90	90	90	90	90	90	90	92
Net Generation (MWH)	331975	440762	453605	466635	394390	447188	470879	383850	464113	427210	494893	405206	533344	585374	573509
Service Hours	6465	8622	8355	8417	6725	7811	8590	7225	8771	7605	8677	7543	8743	8615	7694
Forced Outage Hrs. U1,U2,U3,SF (MWH)	29857	0	684	3264	18910	10343	0	16343	1173	8778	662	0	1997	561	18073
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	17395	0	369	8336	14307	3618	1143	551	1002	27	2139	393	260	590	992
Availability Factor	73.9	98.5	95.4	96.1	76.6	89.2	98.1	87.3	99.9	87.4	99.4	86.2	99.6	98.3	87.8
Equiv. Avail. Factor	71.6	98.4	95.3	95.0	74.7	88.6	97.8	87.2	97.1	87.3	99.0	86.2	99.6	98.3	87.7
Capacity Factor	42.1	55.9	57.5	59.2	49.9	56.7	59.7	48.7	58.7	54.2	62.8	51.4	67.5	74.2	71.2
Output Factor	57.1	56.8	60.3	61.6	65.2	63.6	60.9	59.0	58.8	62.4	63.4	59.7	67.8	75.5	81.0
Equiv. Forced Outage Rate (EFOR)	7.7	0.0	0.1	1.5	5.3	2.0	0.1	2.5	0.3	1.3	0.4	0.1	0.3	0.1	2.6

Gen. Unit: W9

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	6489	8691	8202	8058	8169	8182	8717	8241	8429	7231	8726	8456	8628	7877	7443
Equiv. Derated Hrs.(MWH)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MW Rating	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Net Generation (MWH)	17872	10867	6892	2100	1561	1073	110	893	1194	1264	2744	1274	1762	2327	20847
Service Hours	1163	708	444	193	192	200	93	129	141	149	153	166	194	346	1112
Forced Outage Hrs. U1,U2,U3,SF (MWH)	105978	2769	23417	436	19523	11823	687	186	2918	731	1293	9856	445	4107	3435
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Availability Factor	74.1	99.2	93.6	92.0	93.0	93.4	99.5	94.1	96.0	82.6	99.6	96.5	98.2	89.9	85.0
Equiv. Avail. Factor	74.1	99.2	93.6	92.0	93.0	93.4	99.5	94.1	96.0	82.6	99.6	96.5	98.2	89.9	85.0
Capacity Factor	3.8	2.3	1.5	0.5	0.3	0.2	0.0	0.2	0.3	0.3	0.6	0.3	0.4	0.5	4.5
Output Factor	29.0	29.0	29.3	20.5	15.3	10.1	2.2	13.1	16.0	16.0	33.8	14.5	17.1	12.7	35.4
Equiv. Forced Outage Rate (EFOR)	63.2	6.9	49.9	4.1	65.7	52.7	12.2	2.6	28.1	8.5	13.8	52.8	4.1	18.3	5.5

Gen. Unit: W10

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	8445	8510	8659	8353	8552	8291	7777	8588	8673	8316	8042	7157	8634	8520	6525
Equiv. Derated Hrs.(MWH)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MW Rating	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Net Generation (MWH)	18947	6173	2862	2327	2317	1926	367	1458	858	1025	4055	2398	2269	8347	19049
Service Hours	1233	378	152	231	251	309	100	131	112	132	233	170	213	614	902
Forced Outage Hrs. U1,U2,U3,SF (MWH)	2821	10633	1197	608	1938	8707	654	136	733	1735	85	1207	3852	7715	109846
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Availability Factor	96.4	97.1	98.8	95.4	97.4	94.6	88.8	98.0	98.7	94.9	91.8	81.7	98.3	97.3	74.5
Equiv. Avail. Factor	96.4	97.1	98.8	95.4	97.4	94.6	88.8	98.0	98.7	94.9	91.8	81.7	98.3	97.3	74.5
Capacity Factor	4.3	1.4	0.7	0.5	0.5	0.4	0.1	0.3	0.2	0.2	0.9	0.5	0.5	1.9	4.3
Output Factor	30.7	32.7	37.7	20.1	18.5	12.5	7.3	22.3	15.3	15.5	34.8	28.2	21.3	27.2	42.2
Equiv. Forced Outage Rate (EFOR)	4.4	36.0	13.6	5.0	13.4	36.0	11.6	2.0	11.6	20.8	0.7	12.4	26.6	20.1	70.9

Gen. Unit: K1

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	8480	8490	7391	8665	8585	7066	8483	8759	6407	8724	7309	8639	7614	8728	8092
Equiv. Derated Hrs. (MWH)	13375	3755	13235	3946	9375	19159	257	684	1069	897	2840	2579	1718	1466	1136
MW Rating	86	86	86	86	86	86	86	86	86	86	86	86	86	86	84
Net Generation (MWH)	503427	455206	394187	445118	471463	363304	401482	397764	287110	420176	356269	463681	450307	546219	541027
Service Hours	8472	8488	7427	8641	8559	7066	8483	8471	6376	8723	7258	8629	7615	8728	8092
Forced Outage Hrs. U1,U2,U3,SF (MWH)	10449	7015	4244	1797	304	2652	0	59	1552	1125	3627	1072	335	2709	2565
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	8608	1544	10729	3599	8774	19042	0	203	411	76	2026	2148	1389	1177	1009
Availability Factor	96.8	96.9	84.4	96.9	97.7	80.7	96.8	100.0	72.9	99.6	83.4	98.6	86.7	99.6	92.4
Equiv. Avail. Factor	95.0	96.4	82.6	98.4	96.5	78.1	96.8	99.9	72.8	99.5	83.1	98.3	86.5	99.4	92.2
Capacity Factor	66.8	60.4	52.3	59.1	62.4	48.2	53.3	52.8	38.0	55.8	47.3	61.5	59.6	72.5	73.5
Output Factor	69.1	62.4	61.7	59.9	64.1	59.8	55.0	54.6	52.4	56.0	57.1	62.5	68.8	72.8	79.6
Equiv. Forced Outage Rate (EFOR)	2.6	1.2	2.3	0.7	1.2	3.6	0.0	0.0	0.4	0.2	0.9	0.4	0.3	0.5	0.5

Gen. Unit: K2

2001	2000	1999	1998	1997	1996	1995	1994
8760	8784	8760	8760	8760	8784	8760	8760
7372	8657	8682	7094	8671	8640	5824	8755
18594	2209	3872	3449	2656	7797	13114	4217
86	86	86	86	86	86	86	86
72825	488023	573890	389329	439231	434157	286627	492142 46
7324	8657	8682	6997	8497	8640	5768	8755
1819	10901	6682	252	3762	1091	407	404
17820	1769	3717	2839	400	7203	12880	2272
84.2	98.6	99.1	81.0	99.0	98.4	66.5	99.9
81.7	98.3	98.6	80.5	98.6	97.3	64.7	99.4
49.5	64.7	76.2	51.7	58.3	57.5	38.0	65.3
59.2	65.7	76.9	64.7	60.1	58.4	57.8	65.4
3.1	1.7	1.4	0.5	0.6	1.1	2.7	0.4

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1992	1991	1990
8784	8760	8760
8710	7797	8738
2610	28734	3687
86	86	86
532485	499211	617279
8699	7797	8738
0	195	156
641	25402	3465
99.2	89.0	99.7
98.8	85.2	99.3
70.5	66.3	81.9
71.2	74.4	82.1
0.1	3.8	0.5

Gen. Unit: K3

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	8755	8064	8681	6871	8643	8716	7775	8297	8615	7312	8744	7836	8768	6855	8721
Equiv. Derated Hrs.(MWH)	76195	32597	429	13924	432	5256	144	229	151	829	887	1385	3067	14020	1626
MW Rating	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Net Generation (MWH)	538866	462270	539293	395969	520830	513666	429511	446806	476299	419791	457419	403797	562591	491232	685139
Service Hours	8765	8057	8682	6847	8618	8716	7775	8299	8615	7305	8737	7778	8768	6856	8721
Forced Outage Hrs. U1,U2,U3,SF (MWH)	452	833	360	11088	2180	0	774	7331	1217	0	356	1121	1483	6208	0
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	68846	24331	392	13428	82	5210	0	52	151	607	814	353	193	13844	1562
Availability Factor	99.9	92.1	99.1	78.4	98.4	99.5	88.8	94.7	98.1	83.5	99.8	89.5	99.8	78.3	99.6
Equiv. Avail. Factor	90.3	87.9	99.0	76.7	98.3	98.8	88.7	94.7	98.1	83.4	99.7	89.3	99.4	76.5	99.3
Capacity Factor	68.3	58.6	68.4	50.2	65.9	65.2	54.5	56.7	60.2	53.2	58.0	51.2	71.2	62.3	86.9
Output Factor	68.3	63.7	69.0	64.3	67.2	65.5	61.4	59.8	61.4	63.9	58.2	57.7	71.3	79.6	87.3
Equiv. Forced Outage Rate (EFOR)	8.8	3.5	0.1	3.9	0.3	0.7	0.1	1.0	0.2	0.1	0.1	0.2	0.2	3.2	0.2

Gen. Unit: K4

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	8019	7771	8065	8694	7450	6388	8488	8693	8419	8667	6562	8630	8042	8718	7550
Equiv. Derated Hrs.(MWH)	2955	10161	26068	12679	886	1697	1365	1345	1496	1187	1122	710	159	2635	2023
MW Rating	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Net Generation (MWH)	546319	496767	511145	572751	499996	427233	553647	550967	526878	525426	336752	459353	508673	600984	550536
Service Hours	8095	7785	8065	8680	7475	6430	8481	8692	8410	8667	6483	8630	8042	8747	7546
Forced Outage Hrs. U1,U2,U3,SF (MWH)	8225	3782	0	361	39604	55551	3781	1626	585	1424	0	847	0	1044	2294
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	1988	5293	25587	6307	803	1477	938	701	848	1123	1044	684	54	2059	932
Availability Factor	91.5	88.7	92.1	99.2	84.8	72.9	96.9	99.2	95.8	98.9	74.9	98.5	91.6	99.5	86.2
Equiv. Avail. Factor	91.2	87.4	88.7	97.6	84.7	72.7	96.7	99.1	95.7	98.8	74.8	98.4	91.5	99.2	85.9
Capacity Factor	70.1	63.7	65.6	73.5	64.0	54.8	71.0	70.7	67.4	67.4	43.2	58.9	65.1	77.1	70.6
Output Factor	75.8	71.7	71.2	74.1	75.2	74.7	73.3	71.2	70.4	68.1	58.4	59.8	71.1	77.2	82.0
Equiv. Forced Outage Rate (EFOR)	1.4	1.3	3.6	0.9	5.7	9.1	0.6	0.3	0.2	0.3	0.2	0.2	0.0	0.4	0.5

Gen. Unit: K5

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	6087	8325	8356	8697	7710	8611	8718	7425	7841	7117	8740	7213	8718	7835	8691
Equiv. Derated Hrs.(MWH)	64052	3131	5808	3112	16784	3101	5544	124	1584	4132	18967	15089	1140	4284	21704
MW Rating	142	142	142	142	142	142	142	142	142	142	142	142	142	142	140
Net Generation (MWH)	582534	805284	714554	752221	669068	740272	758393	674938	663205	590589	721244	604775	841538	834692	966172
Service Hours	6081	8325	8356	8601	7684	8607	8543	7949	7739	7070	8739	7109	8718	7833	8691
Forced Outage Hrs. U1,U2,U3,SF (MWH)	3784	11119	6627	2816	2833	14363	0	0	12162	983	2894	2786	8955	18135	4555
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	62468	2496	5717	2150	15819	2272	1280	124	792	2995	18005	14524	334	3676	20029
Availability Factor	69.5	95.0	95.4	99.3	87.8	98.3	99.5	84.8	89.3	81.2	99.8	82.3	99.2	89.4	99.2
Equiv. Avail. Factor	64.3	94.8	94.9	99.0	86.4	98.0	99.1	84.8	89.1	80.9	98.2	81.1	99.2	89.1	97.4
Capacity Factor	46.8	64.7	57.4	60.5	53.6	59.5	61.0	54.3	53.2	47.5	58.0	48.6	67.5	67.1	78.8
Output Factor	67.5	68.1	60.2	61.6	61.3	60.6	62.5	59.8	60.3	58.8	58.1	59.9	68.0	75.0	79.4
Equiv. Forced Outage Rate (EFOR)	7.6	1.1	1.0	0.4	1.7	1.3	0.1	0.0	1.2	0.4	1.7	1.7	0.7	1.9	2.0

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Gen. Unit: K6

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours	8760	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760	8760	8784	8760	8760
Available Hours	8339	8195	6392	8593	8712	6716	8211	7660	8239	8422	7712	8678	7884	8735	8085
Equiv. Derated Hrs.(MWH)	31845	8932	6065	4554	10918	27450	11254	1201	1960	975	6213	1052	612	1160	35105
MW Rating	142	142	142	142	142	142	142	142	142	142	142	142	142	142	142
Net Generation (MWH)	785354	724961	560359	682509	692857	495810	559573	563751	639770	654751	585511	708470	698713	872941	845424
Service Hours	8319	8175	6445	8598	8712	6245	8211	7619	8239	8415	7705	8678	7884	8735	8085
Forced Outage Hrs. U1,U2,U3,SF (MWH)	9410	14574	279	0	227	40416	0	1687	1900	3086	650	3124	4724	3595	608
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	29265	7962	4127	4354	10855	27450	11157	1112	1960	453	5276	752	141	922	34243
Availability Factor	95.2	93.6	73.0	98.1	99.2	76.7	93.7	87.4	93.8	96.1	88.0	99.1	89.8	99.7	92.3
Equiv. Avail. Factor	92.6	92.8	72.5	97.7	98.3	74.5	92.8	87.3	93.6	96.1	87.5	99.0	89.7	99.6	89.5
Capacity Factor	63.1	58.3	45.0	54.9	55.5	39.9	45.0	45.3	51.3	52.6	47.1	57.0	56.0	70.2	68.0
Output Factor	66.5	62.5	61.2	55.9	56.0	55.9	48.0	52.1	54.7	54.8	53.5	57.5	62.4	70.4	73.6
Equiv. Forced Outage Rate (EFOR)	3.2	1.9	0.5	0.4	0.9	7.3	1.0	0.3	0.3	0.3	0.5	0.3	0.4	0.4	3.0

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Reheat Units (W7&8, K1-6)

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours (MWH)	7113120	7113120	7113120	7113120	7132608	7113120	7113120	7113120	7132608	7113120	7113120	7113120	7132608	7113120	7095600
Available Hours (MWH)	6332944	6670556	6468249	6728168	6446866	6308911	6697489	6441374	6628062	6331186	6544963	6581701	6581701	6696384	6700755
Equiv. Derated Hrs.(MWH)	219411	80916	75500	77730	57384	76879	27972	17981	39885	27953	49278	30219	30219	11843	54178
MW Rating	812	812	812	812	812	812	812	812	812	812	812	812	812	812	810
Net Generation (MWH)	4242274	4251574	4198573	4189686	4099926	4022111	4095586	3862579	3993854	3857026	3901965	3973213	3973213	4552421	4991072
Service Hours (MWH)	6337246	6665967	6471041	6703203	6440028	6243720	6662195	6432339	6588535	6312040	6522746	6555527	6686968	6701318	6593611
Forced Outage Hrs. U1,U2,U3,SF (MWH)	82780	41453	16344	31533	77829	130181	4807	38806	21562	21545	10010	23008	58819	33036	54692
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	198997	58876	63515	57360	53367	71132	18088	12149	14697	20540	43809	22990	4924	48939	62298
Availability Factor	89.0	93.8	90.9	94.6	90.4	88.7	94.2	90.6	92.9	89.0	92.0	92.5	92.3	94.1	94.4
Equiv. Avail. Factor	85.9	92.6	89.9	93.5	89.6	87.6	93.8	90.3	92.4	88.6	91.3	92.1	91.9	94.0	93.7
Capacity Factor	59.6	59.8	59.0	58.9	57.5	56.5	57.6	54.3	56.0	54.2	54.9	55.9	55.7	64.0	70.3
Output Factor	66.9	63.8	64.9	62.5	63.7	64.4	61.5	60.0	60.6	61.1	59.8	60.6	59.4	67.9	75.7
Equiv. Forced Outage Rate (EFOR)	4.39	1.50	1.23	1.32	2.01	3.16	0.34	0.79	0.55	0.66	0.82	0.70	0.94	1.22	1.76

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Non Reheat (H8&9, W3-6)

	2002	2001	2000	1999	1998	1997	
3	2847000	2847000	2854800	2847000	2847000	2847000	28
52	2573425	2603098	2725036	2607603	2498140	2556845	24
30	4061	63023	1209	6686	12282	3165	
35	325	325	325	325	325	325	
38	430622	295431	378294	367059	218048	402181	3
33	968583	717088	900025	851369	533971	930626	8
14	27166	26126	26462	27889	5383	4784	
0	1360	3559	583	6686	8583	2611	
3	90.4	91.4	95.5	91.6	87.7	89.8	
4	90.2	89.2	95.4	91.4	87.3	89.7	
1	15.1	10.4	13.3	12.9	7.7	14.1	
0	44.5	41.2	42.0	43.1	40.8	43.2	
0	2.86	3.99	2.92	3.93	2.59	0.79	

	1995	1994	1993	1992	1991	1990	
6	2847000	2847000	2847000	2854800	2847000	2873280	
15	2629415	2656221	2620778	2561639	2587069	2763175	
38	1400	23386	18781	30436	22737	28553	
35	325	325	325	325	325	328	
39	433917	329219	358878	483082	593445	1077198	
12	960926	688126	821931	1076642	1346163	1939750	
13	5618	13858	22025	26925	28828	60905	
2	1300	13017	18843	30417	22737	13204	
3	92.4	93.3	92.1	89.7	90.9	96.2	
3	92.3	92.5	91.4	88.7	90.1	95.2	
7	15.2	11.6	12.6	16.9	20.8	37.5	
3	45.2	47.8	43.7	44.9	44.1	55.5	
2	0.72	3.83	4.84	5.20	3.75	3.70	

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CTs (W9&10)

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours (MWH)	902280	902280	902280	902280	904752	902280	902280	902280	904752	902280	902280	902280	904752	902280	902280
Available Hours (MWH)	766167	886123	867656	844724	860557	848196	850851	866173	880387	799074	864571	806018	888984	843481	720729
Univ. Derated Hrs (MWH)	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0	0
V Rating	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103
Net Generation (MWH)	36819	17040	9754	4427	3878	2999	477	2351	2052	2289	6799	3672	4031	10674	39896
Service Hours (MWH)	123289	56424	31132	21779	22726	26050	9929	13387	13073	14497	19759	17298	20932	49038	104036
Forced Outage Hrs. U2,U3,SF (MWH)	108799	13402	24614	1044	21461	20530	1341	322	3651	2466	1378	11063	4297	11822	113281
Univ. Forced Derated Hours D2,D3 (MWH)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Availability Factor	84.9	98.2	96.2	93.6	95.1	94.0	94.3	96.0	97.3	88.6	95.8	89.3	98.3	93.5	79.9
Univ. Avail. Factor	84.9	98.2	96.2	93.6	95.1	94.0	94.3	96.0	97.3	88.6	95.8	89.3	98.3	93.5	79.9
Capacity Factor	4.1	1.9	1.1	0.5	0.4	0.3	0.1	0.3	0.2	0.3	0.8	0.4	0.4	1.2	4.4
Input Factor	29.9	30.2	31.3	20.3	17.1	11.5	4.8	17.6	15.7	15.8	34.4	21.2	19.3	21.8	38.3
Univ. Forced Outage Rate (EFOR)	46.88	19.19	44.15	4.57	48.57	44.07	11.90	2.35	21.83	14.54	6.52	39.01	17.03	19.42	52.13

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Total Sys. W/O CTs

2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
1120	9960120	9960120	9987408	9960120	9960120	9960120	9987408	9960120	9960120	9960120	9987408	9960120	9968880
1308	9041674	9331266	9171902	8916514	9195629	8998219	9063107	8960601	9201184	9202479	9258023	9287824	9357321
1696	79561	140753	58673	83565	40630	21251	40774	29353	72664	49000	42279	76915	95258
1137	1137	1137	1137	1137	1137	1137	1137	1137	1137	1137	1137	1137	1138
1972	4629195	4485117	4478220	4389170	4313634	4264760	4384643	4290943	4231184	4332091	5035503	5584517	6373103
1420	7439624	7420291	7340053	7095089	7196166	7362965	7460317	7272966	7210872	7377458	7763610	8047481	8533361
1467	43510	57659	104291	158070	10190	43590	38765	27163	23869	45033	85744	61864	115598
356	64875	60919	53950	77818	26671	14760	15429	21840	56826	41833	35341	71676	75502
8.9	90.8	93.7	91.8	89.5	92.3	90.3	90.7	90.0	92.4	92.4	92.7	93.3	93.9
7.7	90.0	92.3	91.2	88.7	91.9	90.1	90.3	89.7	91.7	91.9	92.3	92.5	92.9
6.7	46.5	45.0	44.8	44.1	43.3	42.8	43.9	43.1	42.5	43.5	50.4	56.1	63.9
1.2	62.2	60.4	61.0	61.9	59.9	57.9	58.8	59.0	58.7	58.7	64.9	69.4	74.7
2.22	1.45	1.59	2.13	3.25	0.51	0.79	0.72	0.67	1.12	1.17	1.54	1.65	2.21

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Total Sys. (with CTs)															
Period Hours (MWH)	10862400	10862400	10862400	10862400	10862400	10862400	10862400	10862400	10892160	10862400	10862400	10862400	10892160	10862400	10871160
Available Hours (MWH)	9620328	9736431	9909330	10175990	10032459	9764710	10046480	9864392	9943494	9759676	10065756	10009497	10147007	10131305	10078050
Equiv. Derated Hrs.(MWH)	283160	113696	79561	140753	58673	83565	40630	21251	40774	29353	72664	49000	42279	76915	95258
MW Rating	1240	1240	1240	1240	1240	1240	1240	1240	1240	1240	1240	1240	1240	1240	1241
Net Generation (MWH)	4919786	4670012	4638949	4489544	4482098	4392169	4314111	4267111	4386695	4293232	4237983	4335763	5039534	5595191	6412999
Service Hours (MWH)	7899771	7654844	7470756	7442070	7362779	7121139	7206095	7376352	7473390	7287463	7230631	7394756	7784542	8096519	8637397
Forced Outage Hrs. U1,U2,U3,SF (MWH)	243535	91869	68124	58703	125752	178600	11531	43912	42416	29629	25247	56096	90041	73686	228879
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	260127	91656	64875	60919	53950	77818	26671	14760	15429	21840	56826	41833	35341	71676	75502
Availability Factor	88.6	89.6	91.2	93.7	92.1	89.9	92.5	90.8	91.3	89.8	92.7	92.1	93.2	93.3	92.7
Equiv. Avail. Factor	86.0	88.6	90.5	92.4	91.6	89.1	92.1	90.6	90.9	89.6	92.0	91.7	92.8	92.6	91.8
Capacity Factor	45.3	43.0	42.7	41.3	41.1	40.4	39.7	39.3	40.3	39.5	39.0	39.9	46.3	51.5	59.0
Output Factor	62.3	61.0	62.1	60.3	60.9	61.7	59.9	57.8	58.7	58.9	58.6	58.6	64.7	69.1	74.2
Equiv. Forced Outage Rate (EFOR)	6.18	2.37	1.76	1.59	2.40	3.51	0.53	0.79	0.77	0.70	1.13	1.31	1.59	1.78	3.43

Hono. Sta. (Hono 8&9)

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours (MWH)	1007400	1007400	1007400	1007400	1010160	1007400	1007400	1007400	1010160	1007400	1007400	1007400	1010160	1007400	998640
Available Hours (MWH)	997137	545852	939996	939294	922422	980729	928896	800945	875207	942984	944705	961315	940319	890301	993072
Equiv. Derated Hrs.(MWH)	35651	22311	334	59581	514	533	12217	219	445	1153	9304	1957	11995	8934	839
MW Rating	115	115	115	115	115	115	115	115	115	115	115	115	115	115	114
Net Generation (MWH)	187507	72811	109564	75949	69977	100731	57806	112052	164748	200608	169999	159245	178997	229863	472716
Service Hours (MWH)	444750	174414	255523	186544	175279	232733	132761	247013	362862	420652	339050	334213	379015	517662	820310
Forced Outage Hrs. U1,U2,U3,SF (MWH)	12328	12614	8540	10154	5793	9248	952	15	13528	470	3616	1220	1386	1601	4526
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	35651	22311	213	117	514	533	8583	219	445	1072	2887	1957	11976	8934	839
Availability Factor	99.0	54.2	93.3	93.2	91.3	97.4	92.0	79.5	86.6	93.6	93.8	95.4	93.1	88.4	99.4
Equiv. Avail. Factor	95.4	51.9	93.3	87.3	91.3	97.3	90.8	79.5	86.6	93.5	92.9	95.2	91.9	87.5	99.4
Capacity Factor	18.6	7.2	10.9	7.5	6.9	10.0	5.7	11.1	16.3	19.9	16.9	15.8	17.7	22.8	47.3
Output Factor	42.2	41.7	42.9	40.7	39.9	43.3	43.5	45.4	45.4	47.7	50.1	47.6	47.2	44.4	57.6
Equiv. Forced Outage Rate (EFOR)	10.50	18.67	3.31	5.22	3.48	4.04	7.13	0.09	3.71	0.37	1.90	0.95	3.51	2.03	0.65

Waiau Sta. (with CTs)

	2004	2003	2002	2001	2000	1999		1997	1996	1995	1994	1993	1992	1991	1990
(MWH)	4292400	4292400	4292400	4292400	4304160	4292400	42	4292400	4304160	4292400	4292400	4292400	4304160	4292400	4344960
(MWH)	3600824	3947242	3987057	4010178	3854381	3900247	39	3901990	3966244	3929549	4032389	3885192	3940482	4074062	3832132
Hrs.(MWH)	47238	12493	19648	24363	17555	22497		14793	26272	7066	28094	20811	20978	15682	29138
	490	490	490	490	490	490		490	490	490	490	490	490	490	496
(MWH)	1276519	1204247	1316514	1192202	1068984	1177263	11	1081602	1194528	1195264	1118647	1068950	1266230	1520249	1734706
(MWH)	2428424	2239289	2222244	2051528	1937797	2086384	19	1938937	2026436	1992902	1816098	1920863	2140181	2409528	2564597
Hrs.(MWH)	186410	41743	48074	30688	63910	49688		29432	10381	22136	13700	37359	73158	40199	214175
	43880	11241	10752	13144	15334	18117		11949	3619	2634	24502	20501	20613	15662	13423
or	83.9	92.0	92.9	93.4	89.6	90.9		90.9	92.1	91.5	93.9	90.5	91.6	94.9	88.2
ctor	82.8	91.7	92.4	92.9	89.1	90.3		90.6	91.5	91.4	93.3	90.0	91.1	94.5	87.5
	29.7	28.1	30.7	27.8	24.8	27.4		25.2	27.8	27.8	26.1	24.9	29.4	35.4	39.9
	52.6	53.8	59.2	58.1	55.2	56.9		55.8	58.9	60.0	61.6	55.6	59.2	63.1	67.6
OR)	8.81	2.32	2.59	2.11	3.96	3.20		2.10	0.69	1.23	2.09	2.95	4.24	2.28	8.19

Wai'au Sta. W/O CTs

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours (MWH)	3390120	3390120	3390120	3390120	3399408	3390120	3390120	3390120	3399408	3390120	3390120	3390120	3399408	3390120	3442680
Available Hours	2834657	3061119	3119401	3165454	2993824	3052051	3070011	3035517	3085857	3130475	3167818	3079174	3051498	3230581	3111403
Equiv. Derated Hrs.(MWH)	47238	12493	19648	24363	17555	22497	6400	14793	26272	7066	29094	20811	20978	15682	29138
MW Rating	387	387	387	387	387	387	387	387	387	387	387	387	387	387	393
Net Generation (MWH)	1239700	1187207	1306760	1187775	1065106	1174264	1163893	1079251	1192476	1192975	1111848	1065278	1262199	1509575	1694810
Service Hours	2305135	2182865	2191112	2029749	1915071	2042334	1898498	1925550	2013363	1978405	1796339	1903565	2119249	2360490	2460561
Forced Outage Hrs. U1,U2,U3,SF (MWH)	77611	28341	23460	29644	42449	29158	4431	29110	6730	19670	12322	26296	68861	28377	100894
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	43880	11241	10752	13144	15334	18117	1874	11949	3619	2634	24502	20501	20613	15662	13423
Availability Factor	83.6	90.3	92.0	93.4	88.1	90.0	90.6	89.5	90.8	92.3	93.4	90.8	89.8	95.3	90.4
Equiv. Avail. Factor	82.2	89.9	91.4	92.7	87.6	89.4	90.4	89.1	90.0	92.1	92.6	90.2	89.1	94.8	89.5
Capacity Factor	36.6	35.0	36.5	35.0	31.3	34.6	34.3	31.8	35.1	35.2	32.8	31.4	37.1	44.5	49.2
Output Factor	53.8	54.4	59.6	58.5	55.6	57.5	61.3	56.0	59.2	60.3	61.9	56.0	59.6	64.0	68.9
Equiv. Forced Outage Rate (EFOR)	5.10	1.79	1.54	2.08	2.95	2.28	0.33	2.10	0.51	1.12	2.04	2.42	4.09	1.84	4.46

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Kahe Sta.

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours (MWH)	5562600	5562600	5562600	5562600	5577840	5562600	5562600	5562600	5577840	5562600	5562600	5562600	5577840	5562600	5527560
Available Hours (MWH)	5022367	5243537	4982277	5226518	5255656	4883734	5198722	5161457	5102043	4887142	5088661	5161990	5266206	5166942	5252846
Equiv. Derated Hrs.(MWH)	200271	78892	59579	56809	40604	60535	22013	6239	14057	21134	34266	26232	9306	52299	65281
MW Rating	635	635	635	635	635	635	635	635	635	635	635	635	635	635	631
Net Generation (MWH)	3455760	3392954	3212871	3221393	3343137	3114175	3091935	3073457	3027419	2897360	2949337	3107568	3594307	3845279	4205577
Service Hours	5026597	5241141	4992989	5203998	5249703	4820022	5164907	5190402	5084092	4873909	5075483	5139680	5265346	5169329	5252490
Forced Outage Hrs. U1,U2,U3,SF (MWH)	44797	37512	11510	17861	56049	119664	4807	14465	18507	7024	7932	17517	15497	31886	10178
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	180596	58104	53910	47658	38102	59168	16214	2592	11365	18134	29437	19375	2752	47080	61240
Availability Factor	90.3	94.3	89.6	94.0	94.2	87.8	93.5	92.8	91.5	87.9	91.5	92.8	94.4	92.9	95.0
Equiv. Avail. Factor	86.7	92.8	88.5	92.9	93.5	86.7	93.1	92.7	91.2	87.5	90.9	92.3	94.2	91.9	93.8
Capacity Factor	62.1	61.0	57.8	57.9	59.9	56.0	55.6	55.3	54.3	52.1	53.0	55.9	64.4	69.1	76.1
Output Factor	68.7	64.7	64.3	61.9	63.7	64.6	59.9	59.2	59.5	59.4	58.1	60.5	68.3	74.4	80.1
Equiv. Forced Outage Rate (EFOR)	4.44	1.81	1.31	1.25	1.77	3.62	0.41	0.33	0.59	0.52	0.74	0.72	0.35	1.52	1.36

Stm. Units - Oil - 1-99MW

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours (MWH)	7472280	7472280	7472280	7472280	7492752	7472280	7472280	7472280	7492752	7472280	7472280	7472280	7492752	7472280	7498560
Available Hours (MWH)	6805669	6504468	6947458	6876086	6839978	6740080	6791711	6856149	6779747	6754011	6865009	6945957	5266206	5166942	5252846
Equiv. Derated Hrs.(MWH)	187263	101633	67688	133087	30971	53014	23832	19926	37230	24246	47464	32859	9306	52299	65281
MW Rating	853	853	853	853	853	853	853	853	853	853	853	853	853	853	856
Net Generation (MWH)	3515079	3122727	3354282	3050387	3116295	3153088	2995668	3026071	3081688	3045603	2924429	3018846	3495252	3876884	4561507
Service Hours	5731682	5255420	5337882	4978033	5011821	4986105	4817098	5152309	5191441	5074096	4875824	5135704	5406126	5694825	6168551
Forced Outage Hrs. U1,U2,U3,SF (MWH)	121542	52774	36604	54843	101231	103291	10190	41903	24703	23095	20324	39123	72065	40134	110435
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	168394	81198	55031	54415	27276	48096	14234	13524	12677	18392	33545	26557	34866	67078	21230
Availability Factor	91.1	87.0	93.0	92.0	91.3	90.2	90.9	91.8	90.5	90.4	91.9	93.0	70.3	69.1	70.1
Equiv. Avail. Factor	88.6	85.7	92.1	90.2	90.9	89.5	90.6	91.5	90.0	90.1	91.2	92.5	70.2	68.4	69.2
Capacity Factor	47.0	41.8	44.9	40.8	41.6	42.2	40.1	40.5	41.1	40.8	39.1	40.4	46.6	51.9	60.8
Output Factor	61.3	59.4	62.8	61.3	62.2	63.2	62.2	58.7	59.4	60.0	60.0	58.8	64.7	68.1	73.9
Equiv. Forced Outage Rate (EFOR)	4.95	2.52	1.71	2.17	2.51	2.97	0.51	1.07	0.72	0.81	1.10	1.27	1.95	1.87	2.10

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Stm. Units Oil 100-199MW

	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990
Period Hours (MWH)	2487840	2487840	2487840	2487840	2494656	2487840	2487840	2487840	2494656	2487840	2487840	2487840	2494656	2487840	2470320
Available Hours (MWH)	2048492	2345840	2094216	2455180	2331924	2176434	2403918	2142070	2283360	2206591	2336175	2256522	2357484	2352940	2364810
Equiv. Derated Hrs.(MWH)	95897	12063	11873	7666	27702	30551	16798	1325	3544	5107	25200	16141	1752	5444	56809
MW Rating	284	284	284	284	284	284	284	284	284	284	284	284	284	284	282
Net Generation (MWH)	1367888	1530245	1274913	1434730	1361925	1236082	1317966	1238689	1302975	1245340	1306755	1313245	1540251	1707633	1811596
Service Hours (MWH)	2044800	2343000	2101742	2442258	2326232	2108984	2379068	2210656	2268876	2198870	2335048	2241754	2357484	2352656	2364810
Forced Outage Hrs. U1,U2,U3,SF (MWH)	13194	25693	6906	2816	3060	54779	0	1687	14062	4068	3544	5910	13679	21730	5163
Equiv. Forced Derated Hours D1,D2,D3 (MWH)	91733	10458	9844	6504	26674	29722	12437	1236	2752	3448	23281	15276	475	4598	54272
Availability Factor	82.3	94.3	84.2	98.7	93.5	87.5	96.6	86.1	91.5	88.7	93.9	90.7	94.5	94.6	95.7
Equiv. Avail. Factor	78.5	93.8	83.7	98.4	92.4	86.3	96.0	86.0	91.4	88.5	92.9	90.1	94.4	94.4	93.4
Capacity Factor	55.0	61.5	51.2	57.7	54.6	49.7	53.0	49.8	52.2	50.1	52.5	52.8	61.7	68.6	73.3
Output Factor	66.9	65.3	60.7	58.7	58.5	58.6	55.4	56.0	57.4	56.6	56.0	58.6	65.3	72.6	76.6
Equiv. Forced Outage Rate (EFOR)	5.10	1.53	0.79	0.38	1.28	3.91	0.52	0.13	0.74	0.34	1.15	0.94	0.60	1.11	2.51

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1-99 MW Oil Primary 1982-2003 Data

	AF	EAFF	EFOR	Unit	AF	EAFF	EFOR	Unit-Yrs	AF	EAFF	EFOR
1990	90.13	88.66	6.56	77	84.03	79.94	10.96	48	85.56	82.12	9.86
1991	90.95	89.25	8.40	75	89.45	84.36	11.65	48	89.83	85.58	10.84
1992	92.56	88.64	13.75	67	79.86	75.85	10.41	46	83.04	79.05	11.25
1993	91.07	87.84	10.65	62	87.71	83.66	11.22	49	88.55	84.71	11.08
1994	87.23	86.07	20.35	58	88.38	84.56	10.57	44	88.09	84.94	13.02
1995	91.01	89.21	9.93	45	86.97	83.78	13.19	39	87.98	85.14	12.38
1996	91.78	90.15	8.36	49	84.17	82.21	14.64	42	86.07	84.20	13.07
1997	92.09	90.41	8.94	46	83.62	81.51	13.54	38	85.74	83.74	12.39
1998	89.67	89.11	4.00	44	87.43	85.08	10.94	33	87.99	86.09	9.21
1999	89.23	88.63	5.45	41	85.8	83.96	9.85	33	86.66	85.13	8.75
2000	91.20	90.51	4.34	37	86.61	84	8.75	27	87.76	85.63	7.65
2001	90.09	88.16	8.43	41	83.94	80.27	10.14	32	85.48	82.24	9.71
2002	90.85	88.82	3.22	36	80.86	78.7	12.94	30	83.36	81.23	10.51
2003	90.48	89.19	4.94	37	79.04	76.48	13.49	31	81.90	79.66	11.35

EFOR Percentages

Industry	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Industry	9.86%	10.84%	11.25%	11.08%	13.02%	12.38%	13.07%	12.39%	9.21%	8.75%	7.65%	9.71%	10.51%	11.35%	

EAF Percentages

Industry	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Industry	82.12%	85.58%	79.05%	84.71%	84.94%	85.14%	84.20%	83.74%	86.09%	85.13%	85.63%	82.24%	81.23%	79.66%	

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Ref: HECO 602 – Equivalent Availability.

Please provide separate Equivalent Availability Factor calculations for each HECO-owned and IPP unit for each year shown and explain each of the known causes for significant fluctuations in such data for all years subsequent to 1999. Provide all data in hard copy and electronic (excel) format.

HECO Response:

Please refer to CA-IR-28, Attachment 2, for the Equivalent Availability Factor (EAF) of each HECO-owned generating unit.

EAF fluctuates from year-to-year because the calculation depends on the available capacity of the unit and the length of time a generating unit is unavailable. The primary cause of fluctuation in EAF is unit unavailability due to planned or maintenance outages. An EAF of less than 90% was used as a guide to identify causes for fluctuations on the HECO units.

Attachment 1 to this response provides a description of the planned outages and maintenance outages for the years 2000 through 2004.

Attachments 2 and 3 to this response provide the EAF and calculations for AEG Hawaii.

inspections (planned maintenance outage for a combustion turbine) being completed in calendar year 2004 to accommodate the "M Upgrade" of the two combustion turbines. The second "C" inspection was moved up from March/April 2005 to the November/December 2004 time frame.

The calendar year 2005 will not have a "C" inspection as would normally be the case and thus the actual EAF for 2005 would be expected to be a bit higher than in previous years. See Docket No. 04-0320, CA-IR-32, page 2 of 2.

By contract, HPOWER availability is measured using On-Peak Availability which is calculated during the peak hours, defined as 0700 to 2100 hours, and excluding maintenance. On-Peak Availability is calculated on a contract year basis. Please refer to HECO-WP-507, page 1, for the On-Peak Availability for HPOWER. During contract year July 2001 to June 2002, HPOWER recorded a low value of On-Peak Availability of 72.99% due to a catastrophic failure of the generator. This outage started on March 15, 2002 and ended on May 3, 2002.

Known Causes for EAF < 90%, 2000-2004

Unit	Year	EAF	Cause
H8	2000	85.6	Planned Outage 11/18/00 to 12/14/00
	2001	79.3	Maint Outage 02/28/01 to 03/09/01 (Boiler Warming System installation) Maint Outage 06/18/01 to 06/23/01 (Misc Valve and Boiler Repairs) Maint Outage 10/22/01 to 11/04/01 (Circulating Water Tunnel cleaning)
	2003	35.2	Planned Outage 04/12/03 to 12/02/03
H9	2002	88.1	Planned Outage 11/30/02 to 03/22/03
	2003	69.0	Planned Outage 11/30/02 to 03/22/03
W3	2003	89.8	Maint Outage 01/21/03 to 02/06/03 (#2 Turbine Gland Repair)
	2004	46.6	Planned Outage 06/04/04 to 10/09/04
W4	2001	84.8	Planned Outage 05/14/01 to 05/25/01 Planned Outage 09/17/01 to 10/17/01
W5	2002	67.5	Planned Outage 09/14/02 to 03/24/03
	2003	74.0	Planned Outage 09/14/02 to 03/24/03
W6	2001	80.3	Planned Outage 12/29/00 to 02/28/01
W7	2000	76.4	Planned Outage 09/10/00 to 11/15/00
	2003	85.2	Planned Outage 09/10/03 to 11/03/03
W8	2000	74.7	Planned Outage 01/04/99 to 03/21/99
	2004	71.6	Planned Outage 08/21/04 to 11/02/04
W9	2004	74.1	Planned Outage 10/27/04 to (in progress as of February 2005)
W10	None	None	None
K1	2002	82.6	Planned Outage 01/05/02 to 02/26/02
K2	2001	81.7	Planned Outage 07/16/01 to 09/08/01
K3	2001	76.7	Planned Outage 10/07/01 to 12/16/01
	2003	87.9	Planned Outage 08/02/03 to 08/29/03
K4	2000	84.7	Planned Outage 07/11/00 to 08/18/00
	2002	88.7	Planned Outage 03/02/02 to 03/30/02
	2003	87.4	Planned Outage 11/25/03 to 01/26/04
K5	2000	86.4	Planned Outage 05/19/99 to 07/01/99
	2004	64.3	Planned Outage 01/25/04 to 05/14/04
K6	2002	72.5	Planned Outage 05/04/02 to 08/09/02

AES Hawaii EAF & EFOR

	KILOWATT HOURS					CALENDAR YTD %	
	Potential	Total Derate	Forced Derate	Maintenance Derate	Available (Potential-Derate)	EAF	EFOR
Jan-00	133,920,000	0	0	0	133,920,000	100.000	0.000
Feb-00	125,280,000	0	0	0	125,280,000	100.000	0.000
Mar-00	133,920,000	60,439,903	0	60,439,903	73,480,097	84.626	0.000
Apr-00	129,600,000	41,948,887	0	41,948,887	87,651,113	80.412	0.000
May-00	133,920,000	0	0	0	133,920,000	84.407	0.000
Jun-00	129,600,000	0	0	0	129,600,000	86.977	0.000
Jul-00	133,920,000	8,116,060	8,116,060	0	125,803,940	87.991	0.992
Aug-00	133,920,000	0	0	0	133,920,000	89.516	0.853
Sep-00	129,600,000	418,035	0	418,035	129,181,965	90.629	0.751
Oct-00	133,920,000	3,094,069	3,094,069	0	130,825,931	91.347	0.923
Nov-00	129,600,000	0	0	0	129,600,000	92.122	0.834
Dec-00	133,920,000	0	0	0	133,920,000	92.789	0.758
Jan-01	133,920,000	0	0	0	133,920,000	100.000	0.000
Feb-01	120,960,000	0	0	0	120,960,000	100.000	0.000
Mar-01	133,920,000	4,485,314	4,485,314	0	129,434,686	98.846	1.154
Apr-01	129,600,000	24,584,309	0	24,584,309	105,015,691	94.392	0.908
May-01	133,920,000	0	0	0	133,920,000	95.544	0.715
Jun-01	129,600,000	0	0	0	129,600,000	96.282	0.592
Jul-01	133,920,000	3,490,788	3,490,788	0	130,429,212	96.445	0.895
Aug-01	133,920,000	3,000,496	3,000,496	0	130,919,504	96.612	1.071
Sep-01	129,600,000	3,374,952	3,374,952	0	126,225,048	96.699	1.243
Oct-01	133,920,000	9,937,773	9,937,773	0	123,982,227	96.279	1.885
Nov-01	129,600,000	0	0	0	129,600,000	96.613	1.713
Dec-01	133,920,000	11,065,974	11,065,974	0	122,854,026	96.199	2.278
Jan-02	133,920,000	0	0	0	133,920,000	100.000	0.000
Feb-02	120,960,000	3,738,993	3,738,993	0	117,221,007	98.533	1.467
Mar-02	133,920,000	8,241,159	8,241,159	0	125,678,841	96.919	3.081
Apr-02	129,600,000	4,620,520	510,501	4,110,019	124,979,480	96.798	2.429
May-02	133,920,000	1,288,886	1,288,886	0	132,631,114	97.258	2.126
Jun-02	129,600,000	3,621,074	3,621,074	0	125,978,926	97.249	2.237
Jul-02	133,920,000	0	0	0	133,920,000	97.651	1.909
Aug-02	133,920,000	7,767,232	7,767,232	0	126,152,768	97.211	2.407
Sep-02	129,600,000	3,538,855	3,538,855	0	126,061,145	97.217	2.443
Oct-02	133,920,000	32,638,741	9,331,579	23,307,162	101,281,259	95.016	2.958
Nov-02	129,600,000	0	0	0	129,600,000	95.464	2.687
Dec-02	133,920,000	7,864,820	7,864,820	0	126,055,180	95.350	2.963
Jan-03	133,920,000	0	0	0	133,920,000	100.000	0.000
Feb-03	120,960,000	0	0	0	120,960,000	100.000	0.000
Mar-03	133,920,000	0	0	0	133,920,000	100.000	0.000
Apr-03	129,600,000	0	0	0	129,600,000	100.000	0.000
May-03	133,920,000	4,299	4,299	0	133,915,701	99.999	0.001

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	KILOWATT HOURS					CALENDAR YTD %	
	Potential	Total Derate	Forced Derate	Maintenance Derate	Available (Potential-Derate)	EAF	EFOR
Jul-03	133,920,000	0	0	0	133,920,000	100.000	0.000
Aug-03	133,920,000	14,675	14,675	0	133,905,325	99.998	0.002
Sep-03	129,600,000	10,007,879	10,007,879	0	119,592,121	99.150	0.850
Oct-03	133,920,000	0	0	0	133,920,000	99.237	0.763
Nov-03	129,600,000	0	0	0	129,600,000	99.305	0.695
Dec-03	133,920,000	0	0	0	133,920,000	99.364	0.636
Jan-04	133,920,000	3,733,913	3,733,913	0	130,186,087	97.212	2.788
Feb-04	125,280,000	0	0	0	125,280,000	98.559	1.441
Mar-04	133,920,000	6,581,005	0	6,581,005	127,338,995	97.376	0.966
Apr-04	129,600,000	23,272,274	0	23,272,274	106,327,726	93.575	0.758
May-04	133,920,000	0	0	0	133,920,000	94.885	0.596
Jun-04	129,600,000	0	0	0	129,600,000	95.728	0.494
Jul-04	133,920,000	0	0	0	133,920,000	96.350	0.419
Aug-04	133,920,000	610,388	610,388	0	133,309,612	96.756	0.424
Sep-04	129,600,000	0	0	0	129,600,000	97.111	0.377
Oct-04	133,920,000	0	0	0	133,920,000	97.405	0.337
Nov-04	129,600,000	0	0	0	129,600,000	97.637	0.307
Dec-04	133,920,000	0	0	0	133,920,000	97.837	0.280

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	PH Period Hrs	FOH Forced Outage Hrs	AH Available Hrs	EUDH Equiv Unplnd Derated Hrs	EPDH Equiv Plnd Derated Hrs	SH Service Hrs	EFDHRS Equiv Forced Derated Hrs Res Shtdwn	180/90 Derate Equiv Hrs	Current Month EAF %	Current Month EFOR %	Calendar YTD EAF %	Calendar YTD EFOR %
Jan-00	744.0000	0.0000	744.0000	2.2550	4.6500	744.0000	0.0000	0.5771	98.99	0.30	98.99	0.30
Feb-00	696.0000	0.0000	696.0000	1.8394	9.8997	696.0000	0.0000	0.6197	98.22	0.26	98.62	0.28
Mar-00	744.0000	0.0000	744.0000	30.4074	2.2088	744.0000	0.0000	0.6277	95.53	4.09	97.57	1.58
Apr-00	720.0000	0.0000	504.0833	0.1333	0.8500	504.0833	0.0000	0.2956	69.83	0.03	90.69	1.29
May-00	744.0000	0.3083	500.6083	1.4370	76.4384	500.6083	0.0000	3.3317	56.37	0.35	83.69	1.14
Jun-00	720.0000	0.0000	720.0000	9.0972	0.1265	718.5500	0.0000	0.3798	98.67	1.27	86.16	1.16
Jul-00	744.0000	0.0000	744.0000	2.5065	9.1001	744.0000	0.0000	0.6929	98.35	0.34	87.93	1.03
Aug-00	744.0000	0.0000	744.0000	3.1431	0.0000	744.0000	0.0000	0.2519	99.54	0.42	89.41	0.95
Sep-00	720.0000	0.0000	720.0000	0.4250	18.2000	720.0000	0.0000	0.9583	97.28	0.06	90.27	0.84
Oct-00	744.0000	0.0000	744.0000	13.1875	0.0000	742.7000	0.0000	0.9371	98.10	1.78	91.07	0.94
Nov-00	720.0000	0.0000	720.0000	1.5278	9.1000	720.0000	0.0000	1.6117	98.30	0.21	91.71	0.87
Dec-00	744.0000	0.0000	744.0000	1.2009	6.2500	744.0000	0.0000	0.1078	98.98	0.16	92.33	0.81
Jan-01	744.0000	0.0000	744.0000	1.0000	10.1500	744.0000	0.0000	0.0434	98.50	0.13	98.50	0.13
Feb-01	672.0000	0.0000	672.0000	3.7667	0.0000	672.0000	0.0000	0.4474	99.37	0.56	98.91	0.34
Mar-01	744.0000	0.0000	744.0000	0.4417	268.1417	549.5000	0.0000	1.1781	63.74	0.08	86.80	0.26
Apr-01	720.0000	0.0000	720.0000	1.0833	66.5252	708.8170	0.0000	0.4599	90.55	0.15	87.73	0.24
May-01	744.0000	0.0000	744.0000	0.0231	4.2250	744.0000	0.0000	0.0814	99.42	0.00	90.13	0.18
Jun-01	720.0000	0.0000	720.0000	40.2833	0.9213	720.0000	0.0000	0.4444	94.22	5.59	90.81	1.13
Jul-01	744.0000	0.0000	744.0000	0.6139	2.5597	744.0000	0.0000	0.0808	99.56	0.08	92.09	0.97
Aug-01	744.0000	0.0000	744.0000	0.0000	0.0000	744.0000	0.0000	0.3997	99.95	0.00	93.09	0.84
Sep-01	720.0000	0.0000	720.0000	0.3417	10.8250	720.0000	0.0000	0.3431	98.40	0.05	93.68	0.75
Oct-01	744.0000	0.0000	744.0000	1.4375	0.0000	744.0000	0.0000	0.1562	99.79	0.19	94.30	0.69
Nov-01	720.0000	1.4667	718.5333	1.4065	0.0000	718.5333	0.0000	0.5236	99.53	0.40	94.77	0.66
Dec-01	744.0000	0.0000	744.0000	1.3750	0.9954	744.0000	0.0000	0.5718	99.60	0.18	95.18	0.62
Jan-02	744.0000	0.0000	744.0000	18.1083	0.3472	744.0000	0.0000	1.2373	97.35	2.43	97.35	2.43
Feb-02	672.0000	0.0000	672.0000	0.0000	4.0000	672.0000	0.0000	0.6915	99.30	0.00	98.28	1.28

Current Month EAF %	Current Month EFOR %	Calendar YTD EAF %	Calendar YTD EFOR %
96.99	0.17	97.83	0.90
46.80	0.79	85.07	0.88
99.23	0.76	87.98	0.85
99.88	0.03	89.95	0.71
99.47	0.00	91.34	0.60
98.83	0.21	92.30	0.55
97.35	0.27	92.85	0.52
99.67	0.28	93.55	0.49
98.34	1.13	93.98	0.55
98.01	1.86	94.32	0.67
97.15	2.78	97.15	2.78
97.48	0.24	97.31	1.59
57.29	7.14	83.52	3.24
63.51	0.11	78.52	2.44
99.91	0.08	82.91	1.93
98.78	0.24	85.54	1.63
99.35	0.57	87.56	1.47
99.78	0.10	89.12	1.29
99.47	0.29	90.26	1.18
97.82	0.07	91.03	1.06
98.05	0.13	91.66	0.98
99.79	0.10	92.35	0.90
84.27	9.62	84.27	9.62
97.42	0.33	90.63	5.13
99.33	0.13	93.59	3.42
92.30	7.48	93.27	4.43

Kalaeloa EAF & EFOR

	PH Period Hrs	FOH Forced Outage Hrs	AH Available Hrs	EUDH Equiv Unplnd Derated Hrs	EPDH Equiv Plnd Derated Hrs	SH Service Hrs	EFDHRS Equiv Forced Derated Hrs Res Shtdwn	180/90 Derate Equiv Hrs	Current Month EAF %	Current Month EFOR %	Calendar YTD EAF %	Calendar YTD EFOR %
May-04	744.0000	0.0000	744.0000	0.0000	312.9625	744.0000	0.0000	0.0000	57.94	0.00	86.06	3.53
Jun-04	720.0000	0.0000	720.0000	24.7935	4.8969	718.9000	0.0000	0.6258	95.79	3.45	87.67	3.51
Jul-04	744.0000	0.0000	744.0000	5.2250	0.0000	744.0000	0.0000	0.7444	99.20	0.70	89.35	3.10
Aug-04	744.0000	0.0000	744.0000	19.5361	1.8333	744.0000	0.0000	0.7063	97.03	2.63	90.32	3.04
Sep-04	720.0000	0.0000	720.0000	13.3417	0.0000	720.0000	0.0000	1.1355	97.99	1.85	91.16	2.91
Oct-04	744.0000	0.0000	744.0000	6.4000	11.8417	744.0000	0.0000	0.9393	97.42	0.86	91.80	2.70
Nov-04	720.0000	0.0000	720.0000	0.1111	197.1417	696.9300	0.0000	1.4397	72.40	0.02	90.06	2.47
Dec-04	744.0000	0.0000	744.0000	1.3241	150.9759	732.0500	0.0000	0.0000	79.53	0.18	89.17	2.28

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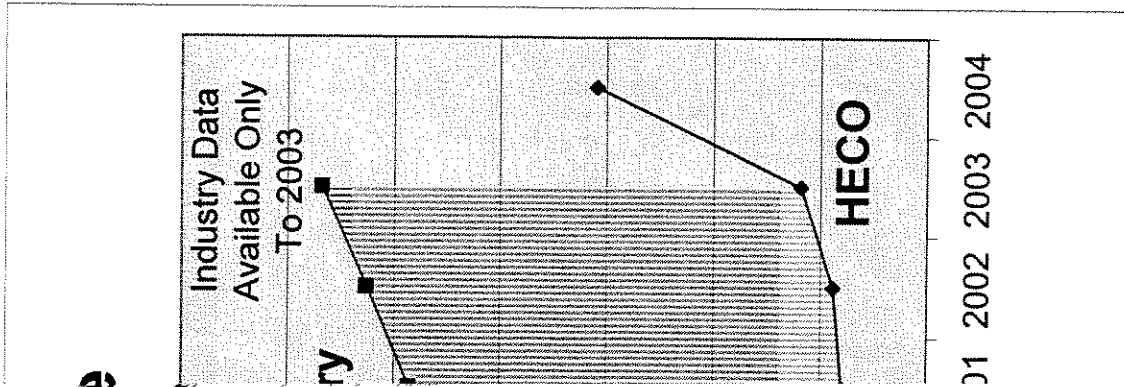
CA-IR-30

Ref: HECO 603 – Equivalent Forced Outage Rates.

Please provide detailed supporting calculations for the HECO data on the graph in all years, provided updated actual 2004 information and provide copies of the documentation supportive of the Industry data, including any updated Industry data now available for periods subsequent to 2002. Provide all data in hard copy and electronic (excel) format.

HECO Response:

The graph in HECO-603 has been updated to include 2004 actual data for HECO and 2003 Industry Data and is attached as CA-IR-30, Attachment 1 [File: CA-IR-30 Attachment 1-EFOR Chart.xls]. Please refer to CA-IR-28, Attachment 2 [File: CA-IR-28 Attachment 2-GenStats.xls], for the data and calculations supporting this graph. The data supporting the Industry data is available through 2003 and is found in CA-IR-28, Attachment 3 [File: CA-IR-28 Attachment 3-NERC GAR.xls].



HECO & Industry EFOR 1990-2004

	HECO	Industry
1990	3.43%	9.86%
1991	1.78%	10.84%
1992	1.59%	11.25%
1993	1.31%	11.08%
1994	1.13%	13.02%
1995	0.70%	12.38%
1996	0.77%	13.07%
1997	0.79%	12.39%
1998	0.53%	9.21%
1999	3.51%	8.75%
2000	2.40%	7.65%
2001	1.59%	9.71%
2002	1.76%	10.51%
2003	2.37%	11.35%
2004	6.18%	

CA-IR-31

Ref: HECO 603 – Equivalent Forced Outage Rates.

Please provide separate Equivalent Forced Outage Rate calculations for each HECO-owned and IPP unit for each year shown and explain each of the known causes for significant fluctuations in such data for all years subsequent to 1999. Provide all data in hard copy and electronic (excel) format.

HECO Response:

Please refer to CA-IR-28, Attachment 2, for the EFOR calculations for each HECO-owned generating unit. CA-IR-31, Attachment 1, identifies the significant cause for EFOR fluctuations

Known Causes for HECO Unit EFOR > 5%, 2000-2004

Unit	Year	EFOR	Description of Forced Outage		
			Start	End	Cause
H8	2000	7.2%	12/15/00	12/18/00	Forced outage due to loss of turbine oil pressure at front standard
	2001	10.4%	01/01/01	06/04/01	-6MW derate due to 81 Boiler Feed Pump
			03/28/01	03/30/01	Forced outage due to loss of vacuum - air ejectors
			05/21/01	05/22/01	Forced outage due to isolation valve on #81 Feed Water Heater
	2003	13.0%	12/11/03	12/12/03	Forced outage due to ID Fan pneumatic controls
			12/15/03	12/21/03	-7MW derate due to Gland Steam and Thrust Bearing
			12/23/03	12/31/03	-7MW derate due to Gland Steam and Thrust Bearing
	2004	23.7%	01/01/04	07/31/04	-7MW derate due to Gland Steam and Thrust Bearing
			07/13/04	07/20/04	Forced outage due to #1 turbing bearing, #82 BFP discharge valve packing
H9	2003	20.0%	03/31/03	04/03/03	Forced outage due to turbine latching problem
			06/04/03	06/18/03	-31MW derate due to Area Meter needs calibration
			06/18/03	06/24/03	-22MW derate due to Area Meter needs calibration
			07/23/03	07/30/03	-27MW derated due to #93 Boiler Feed Pump seized
W3	2002	6.5%	02/22/02	02/26/02	Forced outage due to cable tray electrical fire
	2003	10.9%	05/09/03	05/10/03	Forced outage due to MW Recorder and MVAR Meter burnt
			08/30/03	08/31/03	Forced outage due to Startup Transformer and Superheat Attemperator Check Valve
	2004	24.6%	10/10/04	12/31/04	-7 to -9MW derate due to Turbine Vacuum problem
			02/24/04	03/29/04	Forced outage due to High Speed Forced Draft Fan Motor undersized
			10/15/04	10/18/04	Forced outage due to tube leak, electric turbine trip inoperable
W4	2001	14.8%	06/01/01	06/04/01	Forced outage due to annunciator power supply moved to W3
			10/22/01	10/25/01	Forced outage due to governor servo motor repairs
	2002	5.1%	02/22/02	02/26/02	Forced outage due to cable tray electrical fire
	2004	13.4%	08/26/04	09/10/04	Forced outage due to turbine vibration @ LP - 8 mils
			12/20/04	12/31/04	Forced outage due to H2 cooler - water in the generator
W5	None				
W6	None				
W7	None				
W8	2000	5.3%	06/19/00	06/20/00	Forced outage due to 480V Main Breaker
	2004	7.7%	05/14/04	07/31/04	-7MW derate due to turbine valve and Air Preheater
			11/18/04	11/21/04	Forced outage due to hot spot in gas recirculation duct
			11/22/04	12/03/04	Forced outage due to hydrogen leak/loss of seal oil system

Known Causes for HECO Unit EFOR > 5%, 2000-2004

Unit	Year	EFOR	Description of Forced Outage		
			Start	End	Cause
W9	2000	65.7%	02/05/00	02/06/00	Forced outage due to fuel oil leak in accessories cabinet - replace nipple
			02/06/00	02/08/00	Forced outage due to Fuel Pump
			02/09/00	02/14/00	Forced outage due to Fuel Pump
			02/28/00	03/02/00	Forced outage due to replace control card and cable
			03/17/00	03/22/00	Forced outage due to auxiliary motor overload
	2002	49.9%	02/12/02	02/14/02	Startup failure - high opacity, manually tripped, low diesel oil pressure
			05/12/02	05/13/02	Forced outage due to flame out
			10/20/02	10/29/02	Forced outage due to Radiator Fan
			11/24/02	11/29/02	Forced outage due to lube oil precipitator - cracked insulator
	2003	6.9%	08/30/03	08/31/03	Forced outage due to loss of startup power transformer
	2004	63.2%	10/11/04	12/31/04	Forced outage due to loss of startup power transformer

AES EFOR -- Causes of Significant Fluctuation in 2001 and 2002

Year	EFOR	Start Date	End Date	Description
2001	2.28%	03/08/01	03/10/01	B Boiler tube leak.
		07/03/01	07/05/01	A Boiler tube leak.
		08/13/01	08/15/01	B Boiler ash leak. Pinhole in waterwall tube.
		09/01/01	09/02/01	A Boiler tube leak.
		10/17/01	10/22/01	Ash erosion caused tube leak in B boiler.
		12/22/01	12/24/01	B boiler backpass leak in convection cage found.
		12/25/01	12/28/01	B Boiler, Another weld failed. Removing two tube sections and replacing.
2002	2.96%	02/15/02	02/17/02	Failure of construction weld in upper convection cage of Unit B. Replaced section of tube, inspected other welds in area, and repaired welds as needed.
		03/13/02	03/15/02	A Boiler tube leak.
		03/25/02	03/26/02	A Boiler tube leak in southeast corner.
		06/01/02	06/03/02	Tube leak on A Boiler waterwall tube, N/E corner.
		08/27/02	08/29/02	A boiler shutdown with combustor waterwall leak in South East Corner.
		09/14/02	09/16/02	"A" boiler water wall tube leak northeast
		10/02/02	10/06/02	Tube Leak in A boiler combustor North east corner.
		12/19/02	12/21/02	Leak on 'A' boiler feed pump discharge flange gasket.

CA-IR-32

Ref: HECO T-6, Page 5, Line 7.

Please identify and explain each instance in 2003 and 2004 when load was shed automatically or manually, indicating the known causes of each incident, as well as the role of interruptible tariff provisions, DSM and other tools available to HECO at such times to help maintain supply/demand balancing.

HECO Response:

No automatic or manual load shedding incidents occurred in 2003 or 2004. There was one instance in 2004 when Rider I (interruptible tariff) customers were tripped off-line. On Sunday, May 23, 2004, two generating units tripped off-line when a circuit breaker failed. All Rider I customers that were on-line that day tripped off-line automatically when their underfrequency relays activated. There were no other losses of customers that day. Spinning reserves, the additional generation the operating units are capable of producing, were at approximately 55 megawatts after the two generating units tripped off-line. The loss of any other generating unit would have resulted in a generation shortfall and customer outages. HECO tries to operate with enough spinning reserves to cover for the loss of the largest operating unit (AES - 180 megawatts) in the event it is lost unexpectedly - the idea being that the remaining generating units will be able to cover for it (and any smaller unit) to avoid power interruptions to our customers.

There was one instance in 2004 when Rider I customers were scheduled to be removed from service, but, because the situation improved, the scheduled interruption was canceled. During the late evening of Tuesday, October 12, 2004 through Wednesday, October 13, 2004, three generating units were removed from service for unexpected maintenance. There was one unit on planned maintenance that day, and another operating at reduced capacity. This situation

was occurring the day after a new record peak was set at 1327 MW on 10/12/04. HECO managed the situation by stopping all non-routine maintenance, informing large customers of the situation and asking them to conserve power, informing the general public through the media to conserve electricity, and scheduling the Rider I customers to be taken off-line during the evening peak period. In the end, the situation improved, and the Rider I customers were not taken off-

line. Please refer to Section 3.2, page 11 in the 2005 HECO Adequacy of Supply Report filed with the Commission and the Consumer Advocate on March 10, 2005.

On a day-to-day basis, HECO tries to maintain enough spinning reserves to cover for the loss of the largest operating unit, for reasons explained earlier. This is one of HECO's reliability criteria (the other is related to the addition of generating capacity). The amount of spinning

CA-IR-33

Ref: HECO 608 – Waiau 9 & 10 Service Hours.

provide updated actual 2004 information and provide copies of the documentation and calculations supportive of all "Forecast" hours data. Provide all data in hard copy and electronic

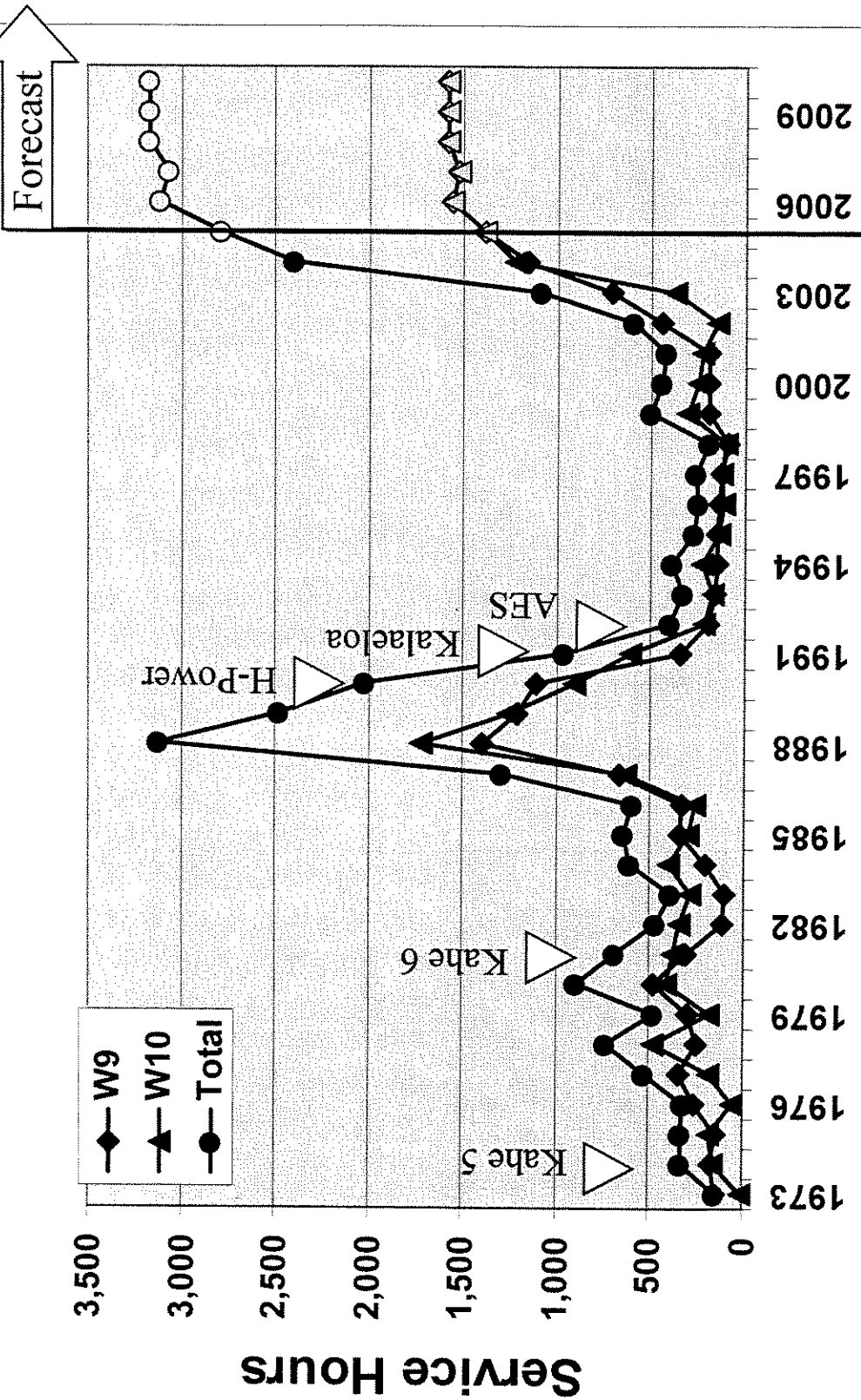
The 2005 to 2008 estimates in HECO 608 were derived using the high-end estimate of 3069 hours and comparing that estimate with the 2004 production simulation forecast hours to derive an adjustment for the years 2005 to 2008. The simulation forecast hours were increased by this adjustment to obtain the values used in the plot, and split evenly between W9 and W10. A straight line extrapolation of 2008 was used to derive the operating hours for the years 2009 and 2010. The straight line extrapolation was based on the following assumptions:

- Continued load growth on Oahu beyond 2008.
- Lower reserve margin in 2009 and 2010.

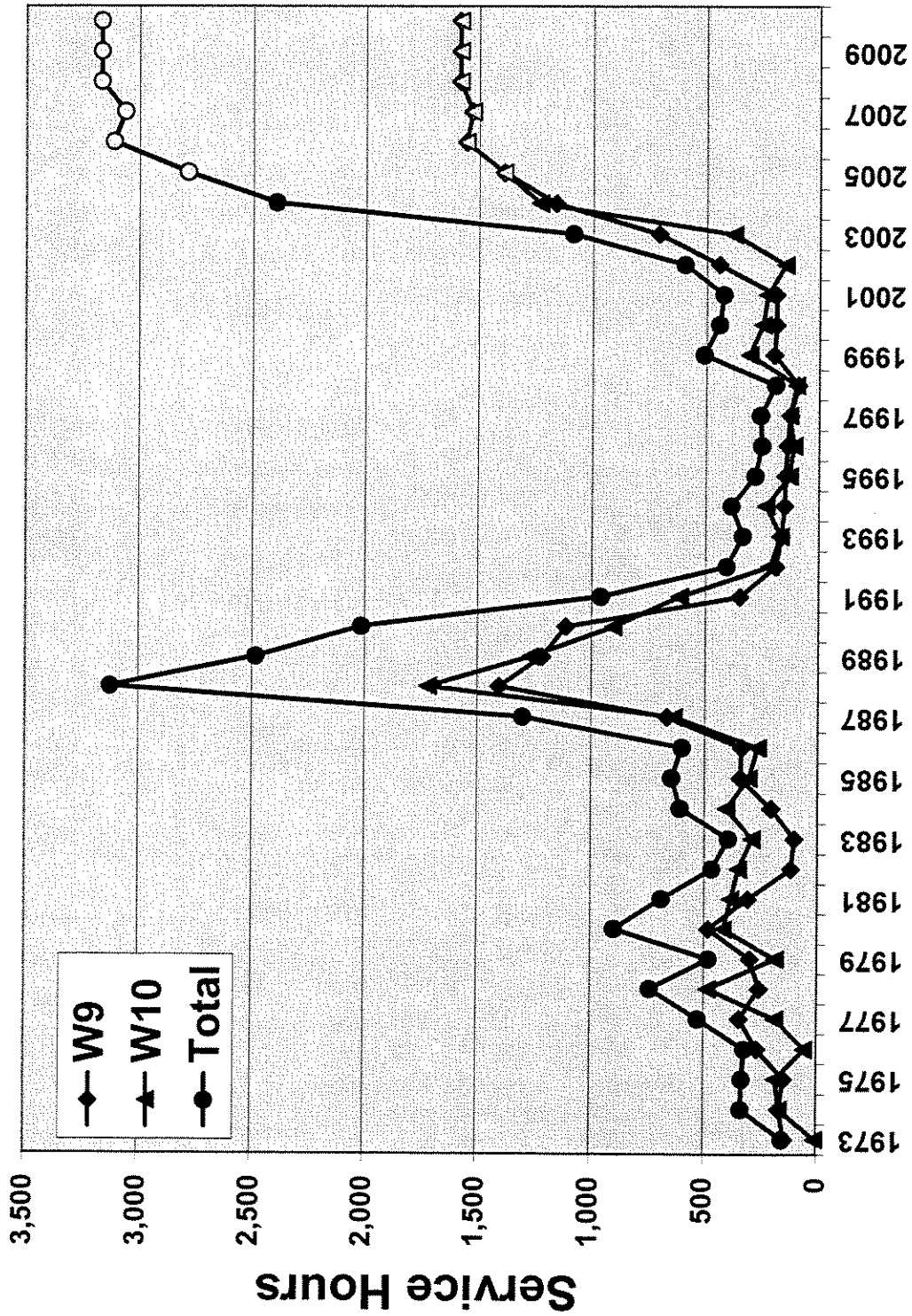
As stated in HECO T-6, page 8, from an operational perspective combustion turbine service hours are not expected to taper off in the foreseeable future.

Hawaiian Electric Company, Inc.
The Generating Units are Running Harder

Waiau 9 & 10 Service Hours by Year



Waiau 9 & 10 Service Hours by Year



W9 & W10 Service Hours by Year			
	W9	W10	Total
1973	144	8	152
1974	167	166	333
1975	146	183	329
1976	263	56	319
1977	342	185	527
1978	255	483	738
1979	295	185	480
1980	482	414	896
1981	306	382	688
1982	118	348	466
1983	104	289	393
1984	206	402	608
1985	342	303	645
1986	335	265	600
1987	666	635	1301
1988	1405	1719	3124
1989	1216	1267	2483
1990	1112	903	2015
1991	347	613	960
1992	191	215	406
1993	166	170	336
1994	153	233	386
1995	149	132	281
1996	141	112	253
1997	129	131	260
1998	93	101	194
1999	200	309	509
2000	192	251	443
2001	193	231	424
2002	444	152	596
2003	708	378	1086
2004	1163	1233	2396
2005	1392.5	1392.5	2785
2006	1556.5	1556.5	3113
2007	1531	1531	3062
2008	1584.5	1584.5	3169
2009	1584.5	1584.5	3169
2010	1584.5	1584.5	3169

(Forecast value for 2004 in HECO-608 = 2503.5)

CA-IR-34

Ref: HECO 609 – Cycling Unit Service Hours.

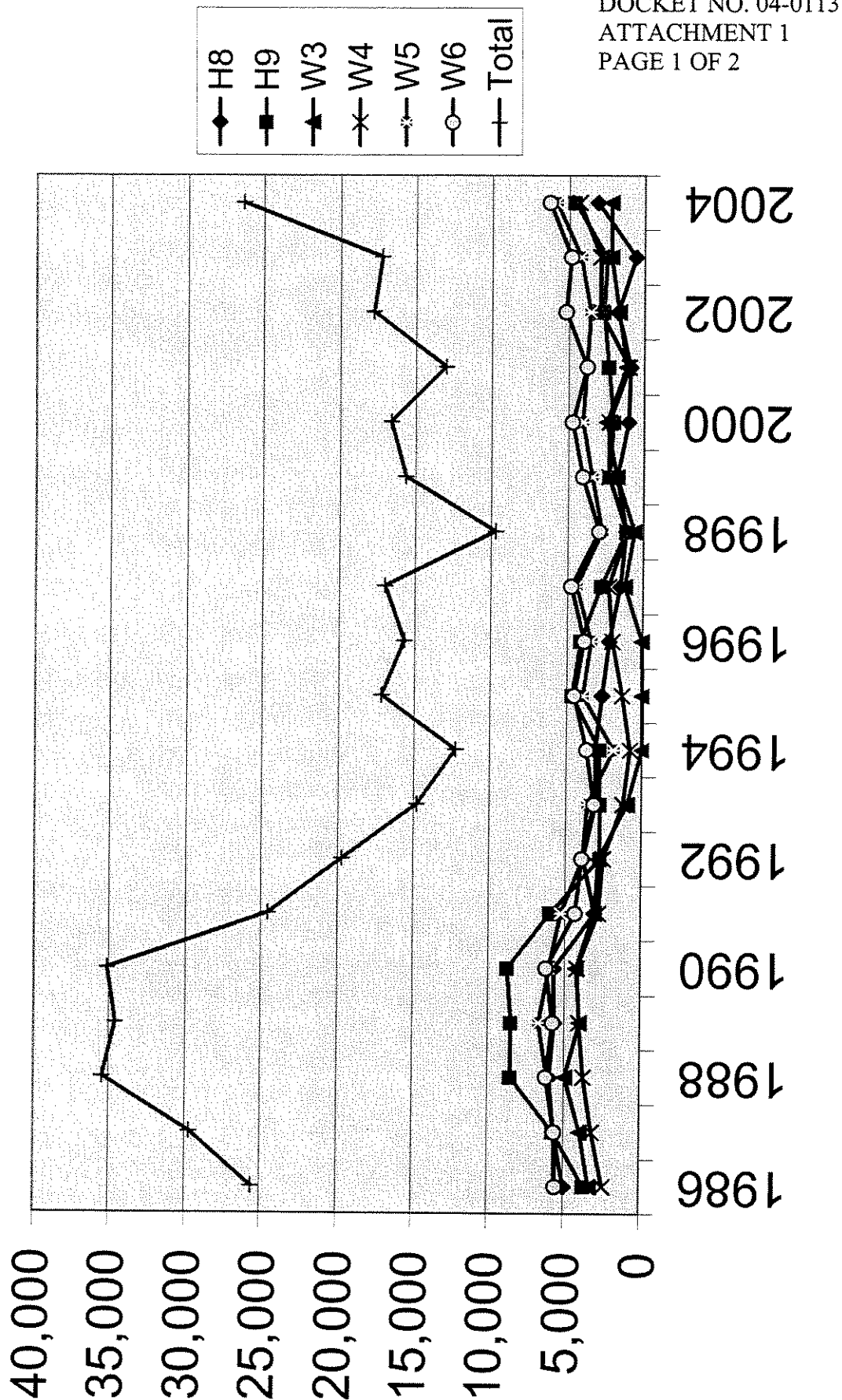
Please provide detailed supporting calculations for the unit hours data on the graph in all years, provide updated actual 2004 information and provide copies of the documentation and calculations supportive of all “Extrapolated” hours data. Provide all data in hard copy and electronic (excel) format.

HECO Response:

The unit service hour data for the cycling units was extracted from CA-IR-28, Attachment 2, and plotted in Attachment 1. The data has been updated to include actual 2004 information. The “extrapolated” service hour projection in HECO-609 was obtained by dividing the actual cycling unit service hours through August 12, 2004 by 0.7 to obtain the projected 2004 year-end result of 22,277 hours shown at the bottom of Attachment 1, page 2. The factor of 0.7 was a conservative estimate of the percentage of total service hours the units had recorded through that point in the year. The year end recorded service hour was approximately 18% higher at 26,328 hours.

As discussed in HECO T-6, page 23, the significantly higher service hours due to increases in demand is driving the need to increase the availability of H8&9 and W3&4 from 16 hours per day, 5 days per week to 24 hours per day, 7 days per week. This is the primary driver for increasing operations staffing in 2004 to support 24/7 operation of H8&9, and W3&4, and is part of a broader reserve capacity shortfall mitigation plan. Also, please refer to HECO’s response to CA-IR-1, “d”, and Attachment 5. The significant increases in service hours also result in running these older units harder, which results in more wear and tear on equipment and higher maintenance expenses. Referring to HECO 601, H8&9 and W3&4, are the oldest active units on the HECO system. Their ages range from 47 years (H9) to 57 years (W3) in 2004.

Cycling Unit Service Hours



Cycling Unit Service Hours (data extracted from GENSTATS [CA-IR-28, Attachment 2])

	H8	H9	W3	W4	W5	W6	Total
1986	4983	3703	3334	2439	5589	5528	25576
1987	5673	5696	3966	3176	5581	5624	29716
1988	5956	8505	4952	3737	6102	6165	35417
1989	5651	8471	4016	4037	6665	5746	34586
1990	5695	8750	4262	4196	6013	6207	35123
1991	3066	5962	3082	2813	5273	4347	24543
1992	3841	2741	2806	2526	3872	3921	19707
1993	3043	2767	964	1248	3600	3166	14788
1994	3092	2802	0	805	1888	3673	12260
1995	2671	4662	10	1349	3944	4525	17161
1996	2223	4104	43	2018	3408	3885	15681
1997	1514	2793	1223	2290	4388	4752	16960
1998	1148	1161	605	1106	2733	2938	9691
1999	1769	2283	1786	2309	3428	4047	15622
2000	1030	2027	2466	2301	4049	4734	16607
2001	895	2362	1170	1009	3794	3773	13003
2002	1759	2693	1693	2914	3556	5175	17790
2003	564	2486	2205	2923	4206	4855	17239
2004	3114	4634	2199	4309	5817	6255	26328
thru 08/12/04	1612	2647	1743	2689	3523	3380	15594
"2004 Extrapolated" = (08/12 data) divided by 0.7							
	2303	3781	2490	3841	5033	4829	22277

CA-IR-35

Ref: HECO T-6, Page 8, Line 22.

According to the testimony, “The rapidly growing demand will increase Other Production O&M expenses as units are run harder and require more maintenance to mitigate impacts on reliability and reserve margins decrease.” Please provide the following information with respect to this statement:

- a. State whether or not actual recent “rapidly growing demand” has, in fact, increased actual Other Production O&M expenses and provide copies of all studies, reports, analyses, workpaper and other documents associated with your response.
- b. Regarding the prediction that “rapidly growing demand will increase Other Production O&M expenses,” please state whether this prediction is based upon any studies, analyses, workpapers, projections or other empirical data.
- c. If your response to part (b) of this information request is affirmative, please provide complete copies of all studies, reports, analyses, workpaper and other documents associated with your response.

HECO Response:

- a. Please refer to HECO’s response to CA-IR-37. As explained in HECO T-6, growing demand has resulted in lower reserve margins, units being run harder, and reduced maintenance flexibility. Along with other factors, such as the aging of the units, this has resulted in more wear and tear on the units. In addition, the testimonies address HECO’s increased staffing requirements for both operations and maintenance work.
 - b. Please refer to HECO’s response to CA-IR-37.
 - c. Please refer to HECO’s response to CA-IR-37.
-

CA-IR-36

Ref: HECO T-6, Page 9, Line 12.

According to the testimony, "Other Production O&M Non-labor will significantly increase due to the need for outside services to supplement the workforce and provide specialized skills and services, i.e., generator, turbine and environmental consulting services." Please provide the following information with respect to this statement:

- a. A detailed schedule comparing actual annual "outside services" costs chargeable to Production O&M accounts in 2001, 2002, 2003, 2004 and the projected test period amount, by generating station, Account, RA, payee, type of service and amount.
- b. Explanations for significant (more than \$250,000 per year) fluctuations among years as well

as individually significant payments (more than \$100,000 to a vendor) in each year.

- c. Detailed explanations for each new or changed level of activity involving outside services in the test year, relative to historical activity and cost levels set forth in the response to part (a) of this information request.

HECO Response:

- a. Payments to vendors in 2001 through 2004 to supplement the workforce and to provide specialized skills and services were selected. The file is voluminous and will be provided to the CA and the Commission as a separate submittal referencing CA-IR-36. Comparable projected test period amounts are not available as the forecast was developed at a higher level. Attachment 1 describes the spreadsheet format structure.
- b. From the voluminous file provided in response to part a. above, those individually significant payments (more than \$100,000 to a vendor) are listed in Attachment 2. The services identified are for special skills required to support the respective types of work. Attachment 3 provides a summary of the fluctuations among the years including those years

the data provided in the transmittal in part a. above. Outside services costs were sorted into three categories – Support, Skill and Other. The “Support” category includes trades and craft labor that supplemented existing labor forces. The “Skill” category includes special skills and expertise such as consultants, engineers, etc., that were required to support projects and non-project work. The “Other” category includes landscaping, weed control and equipment rental expenses. The summary shows cost increasing from 2001 through 2004 due to all of the maintenance expense factors identified in HECO T-6 such as aging units, running the units harder, growing demand, etc.

Due to the voluminous nature of the information, one copy (pages 3-76) will be provided to the Consumer Advocate and the Public Utilities Commission under separate transmittal.

PAGE 1 OF 1

Explanation of Database file "CA-IR-36 Payee Suppl Spec.xls"

Selected 2001 through 2004 vendor payment transactions representing activity to supplement the workforce and to provide specialized skills and services. The "Outside Services" expense element represented in these transactions is 501- Outside Services – General.

The useful data shown for each record are:

- 1) Account Code – Defines RA, Activity, Location, Indicator, 5th Segment/Project, and Expense Element
- 2) Trans Year – Defines year transaction posted
- 3 Amount – Amount of Transaction
- 4) Work Order Description – Nature of the work
- 5 Inv Item Desc – Description of the work being provided by the vendor
- 6 Supplier Name – Vendor Name
- 7) SVC Type – grouped by Skill (Specialized Skill), Supp (Supplement the Workforce) and Other.

The hardcopy provided is sorted primarily by Transaction Year and with the secondary sort by SVC Type.

Hawaiian Electric Company, Inc.
Rate Case - Test Year 2005

Other Production O&M - Select Outside Services Cost
Payments to Vendor > \$100,000

Vendor Name	Inv #	Invoice Description	WO #	WO Description	Trans Year	Amount
REINHART & ASSOC, INC.	6652	H8 GEN. PRIME CONT-BOTTLE BORING & INSP	PR033786	H8 GENERATOR ROTOR REPAIRS - Bottle Bore	2003	103,685.75
REINHART & ASSOC, INC.	6275	H9 TUR.PERFORM NDE/NDT-INSP:HP,LP&GEN.	PR029998	H9 HP TURBINE OVERHAUL	2003	107,000.00
HAZTECH ENVIRON SRVC	1737	LABOR	PR027388	W5 Main XFMR Removal of Hazardous Solids	2002	118,268.10
THERMAL SOLUTIONS, INC.	6508-B	PREHEAT/PWHT SVCS (H8 Trb Weld Rprs)	PR032820	H8 HP LOWER/UPPER TRB CYL WELD REPAIRS	2003	122,320.75
DIVERSIFIED ENERGY SRVC.MJI-6229	BALANCE:	LP ROTOR, HP ROTOR, LP ROTOR	PR016058	W6 HP Trb Outer Cyl/Blade Rings OH	2001	124,483.15
THERMAL SOLUTIONS, INC.	6058	PREHEAT/PWHT SVCS (H8 Trb Weld Rprs)	PR032820	H8 HP LOWER/UPPER TRB CYL WELD REPAIRS	2003	155,302.79
THERMAL SOLUTIONS, INC.	6508-A	PREHEAT/PWHT SVCS (H8 Trb Weld Rprs)	PR032820	H8 HP LOWER/UPPER TRB CYL WELD REPAIRS	2003	155,421.66
HAMON CUSTODIS, INC.	0-10567	LABOR	PR022777	K3 STACK REPAIR WORK	2001	164,696.82
THERMAL SOLUTIONS, INC.	6456	H9-PRE/POST HEAT TREAT TRB WELD REPAIRS	PR031100	H9 TURBINE WELD REPAIR WORK & PWHT	2003	208,570.70
AGT SERVICES	2000-377	W5 GEN STATOR REPAIRS TO REMOVE BURR	PR029711	W-5 Generator stator repairs to remove	2002	211,670.50
DIVERSIFIED ENERGY SRVC.MJI-6869	W8	TUR SERV REPAIR LP RTR & STAT BLADES	PR041658	W8 LP ROTOR OVERHAUL	2004	234,360.00

Note: Complete vendor payment information can be found on CA-IR-36, voluminous transmittal.

Hawaiian Electric Company, Inc.
Rate Case - Test Year 2005

Other Production O&M - Select Outside Services Cost

	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	
<u>Support - Supplement the Workforce</u>					
	1,674,568.15	1,605,247.34	1,684,888.70	2,894,060.10	See note (1)
<u>Skill - Specialized</u>					
	2,628,508.67	2,885,575.05	2,925,719.05	3,492,859.28	See note (2)
<u>Other - Landscape, Weed Control, Equip Rental</u>					
	95,331.77	54,237.74	15,264.85	18,620.97	
<u>Total</u>					
	<u>4,398,408.59</u>	<u>4,545,060.13</u>	<u>4,625,872.60</u>	<u>6,405,540.35</u>	

Notes:

- (1) - Cost to supplement the workforce increased by \$1,209,171 in 2004 compared to 2003.
- (2) - Cost for specialized skills increased by \$567,140 in 2004 compared to 2003.

CA-IR-37

Ref: HECO T-6, Page 9, Line 20.

According to the testimony, "...other major factors [that] impact Other Production O&M" include "Age of generating units and associated infrastructure." Please provide the following information with respect to this statement:

- a. State whether or not the "age of generating units" has, in fact, caused an increase in actual Other Production O&M expenses and provide the estimated magnitude of change occurring in each year since 1995.

b. Provide copies of all studies, reports, analyses, and documents that have been prepared or are being prepared by HECO or its subsidiaries, affiliates, or consultants, in connection with the preparation of the testimony, that discuss the impact of the age of generating units on Other Production O&M expenses.

- b. The cost effectiveness in continuing to maintain existing generation and keep it running rather than installing new generation and retiring existing generation was studied in HECO IRP-2, Docket No. 95-0347. In the HECO IRP Plan (1998 – 2017) filed on January 30, 1998, HECO states in Section 8.1.1, (HECO Resources) pages 8-2 to 8-3:

“In general, it is much more cost-effective to modernize an existing unit and keep it operating than to retire the unit and replace the capacity with a new generating unit. For example, for Honolulu Units 8 and 9, the budgetary estimate to modernize the units is roughly \$17.4 million, or about \$160 per kW-net, based on a combined rating of 107.3 MW-net for the two units. In contrast, the installed cost of a 106.5 MW-net simple cycle combustion turbine is about \$600/kW-net in 1997 dollars.

The economics of retiring existing units and replacing the generation with new units was compared against modernizing the units and keeping them operating. In the modernization scenario, a proxy value of \$500/kW was used for modernization costs. This proxy value is on the very high side as Sargent & Lundy’s total estimates for modernizations costs range from \$100 to \$200/kW-net. In addition, not all of the modernization items identified by Sargent & Lundy may be done since detailed evaluations may show that some of the items are not cost-effective. The high proxy value was used to simplify the optimization modeling runs and to check if the accuracy of the Sargent & Lundy estimates were critical to the results. It was found that even with the high proxy modernization costs, it is more economical to modernize the units than to retire the units and replace the generation with new capacity. The results are summarized in Appendix I.”

Hawaiian Electric Company Inc.

Attachment 1

2005 TEST YEAR

1995 - 2004 Change in Other Production O&M Cost
(In the Thousands)

<u>Acct Group</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005 TY</u>
Operation	13,563	14,223	17,759	17,917	16,673	21,190	20,150	19,414	20,173	20,286	24,282
Maintenance	18,095	16,673	14,543	11,704	17,798	24,377	22,521	24,880	24,880	30,171	31,003
Total	31,658	30,896	32,302	29,621	34,471	45,567	42,671	44,294	45,053	50,457	55,285
Change Between Yrs		(762)	1,406	(2,681)	4,850	11,096	(2,896)	1,623	759	5,404	4,828

CA-IR-38

Ref: HECO T-6, Page 10, Line 7 and HECO 610.

According to the testimony, "Significant capital, and O&M Labor and Non-Labor resources are required to maintain compliance with all regulations impacting the operation and maintenance of HECO's generating units, the disposal of wastes generated from the process, and ensuring employee and public safety." Please provide the following information with respect to this statement:

- a. Identify and quantify the "capital" resources that were invested in 2004 and that are projected to be invested in 2005 with respect to compliance with regulations and safety.

indicating any projects/amounts directly attributable to changed regulations.

- b. Identify and quantify the "O&M Labor" resources that were expended by Account and RA in 2004 and that are projected to be expended in 2005 with respect to compliance with regulations and safety, indicating any projects/amounts directly attributable to changed regulations.

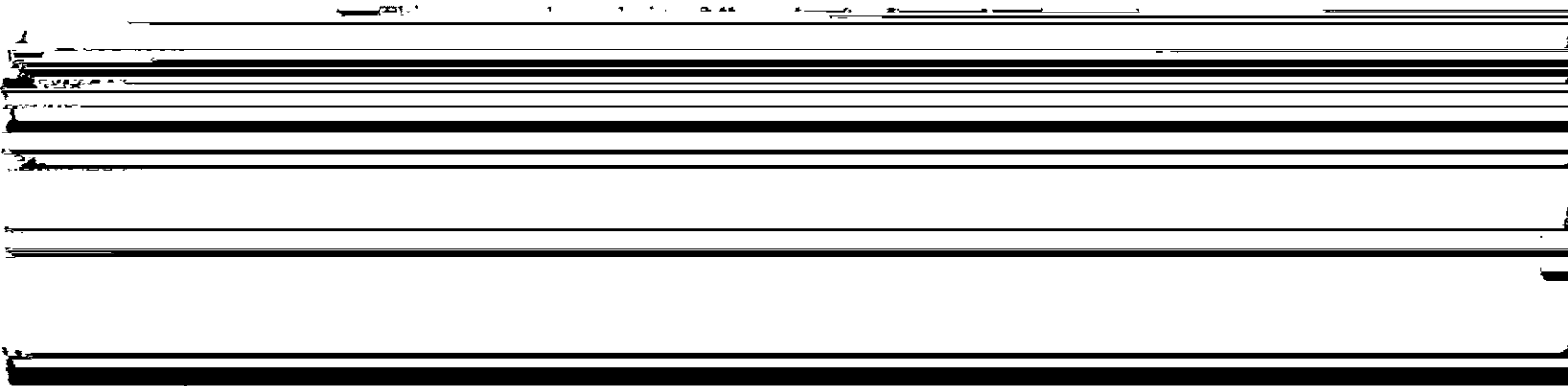





- c. Identify and quantify the "O&M Non-Labor" resources that were expended by Account and RA

compliance requirements. There are a few examples below where a changed regulation has resulted in a capital project.

- a. Capital resources that were invested in 2004 and that are projected to be invested in 2005 with respect to compliance with regulations and safety are provided on page 5 to this
-

response. Note that project P0000667, Kahe Sewer System Upgrade, is a project that was initiated by a change in regulation. It has a compliance deadline of April 5, 2005. A copy of the regulation that resulted in the initiation of the Kahe Sewer System Upgrade project is provided in Attachment 1. Attachment 1 is voluminous (68 pages). One copy each will be provided to the Consumer Advocate and the Commission under separate transmittal.

- b. O&M Labor resources that were expended by Account and RA in 2004 and that are projected to be expended in 2005 with respect to compliance with regulations and safety is provided on page 6 to this response. Note that PJW and PIN labor were impacted by changes in regulations. PJW, Water & Hazardous Material, was impacted by changes in 316(b), and PIN, Honolulu Station Maintenance, was impacted by changes in the Department of Transportation ("DOT") regulations impacting the maintenance, inspection and testing of the Iwilei fuel oil pipeline. The regulation for 316(b) is provided in CA-IR-39.
- c. O&M Non-Labor resources that were expended by Account and RA in 2004 and that are projected to be expended in 2005 with respect to compliance with regulations and safety is provided on page 7 to this response. Note that PJW and PIN non-labor were also impacted by changes in 316(b) and the DOT. The applicable section of the DOT regulation is provided on pages 8 to 14 to this response.
- d. Yes, please refer to response to "e" below.

- e. Regarding new or revised regulations, aside from the new EPA 316(b), there is also a newly proposed EPA regulation (i.e., see Attachment 2: All Appropriate Inquiries (“AAI”); 40 Code of Federal Regulations Part 312; Federal Register Vol. 69, No. 165, 8/26/04) to provide standards for conducting environmental site assessments (“ESA”) for property transactions and for defining environmental professionals who are qualified to conduct such
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applicability associated with these rules were undeterminable and thus costs for compliance have not been included in the test year forecast. At such time that these proposed rules are formally adopted by the issuing agencies, costs for compliance can then be developed and may be provided if requested.

- f. As mentioned in part (e) above, compliance with AAI regulations will be required after the EPA rule is finalized, probably in late 2005. HECO will follow current ESA guidelines for conducting property due diligence site assessments until such time the new AAI regulation becomes effective. HECO primarily depends on consultants to perform these assessments and is anticipating a cost increase for these site assessments. It is not possible to forecast the O&M and Capital cost impacts at this time.

Capital Work
Compliance with Regulations & Safety
2004 & 2005

*Project #	Project	Pit_Add _Date	FY04	FY05	Comments
P0000086	Waiau WW Oil Detectors	2005/08	5,940	18,413	
P0000097	Waiau 8 Sootblower Ctl's Upg	2004/11	279,296	0	
P0000254	W3 Stack & Breeching Rpl	2004/07	283,379	0	
P0000313	W8 APH Sootblower Upgrade	2004/10	70,328	0	
P0000314	W7 APH Sootblower Upgrade	2006/03	0	58,012	
P0000327	K4 Flue Gas O2 Analyzer	2004/01	17,653	0	
P0000328	K5 Flue Gas O2 Analyzer	2004/05	76,150	0	
P0000441	W3 Soot Blower Upgrade	2008/10	6,009	552	
P0000442	W4 Soot Blower Upgrade	2005/12	0	337,361	
P0000454	K6 Fan Enclosure	2005/03	33,136	649,961	
P0000510	Circ Water Temp Monitors	n/a	82,327	10,151	
P0000590	PP Security Hardware Upgrade	n/a	203,012	102,962	
P0000609	K2 Blr Access Door Addition	2004/12	42,240	51,765	
P0000610	K1 Blr Access Door Addition	2006/03	0	61,670	
P0000619	Kahe Demin/WWTF Smk Detect	2005/07	0	30,689	
P0000620	Kahe Fire Water Storage Tnk2	2005/07	16,940	735,462	
P0000623	K1-4 & K5-6 Fire Main Tie-in	2005/09	0	119,607	
P0000624	Kahe Tank Farm Fire Main	2004/09	821,104	16,417	
P0000625	HPP Swyd Cable Tray Sprinkler	2004/05	51,348	0	
P0000626	W3-8 Cable Rm Smoke Detector	2005/10	0	36,328	
P0000627	W3-8 Swgr Rm Smoke Detector	2005/10	0	36,328	
P0000628	K1-6 Cable Rm Smoke Detector	2005/06	0	34,998	
P0000629	K1-6 Swgr Rm Smoke Detectors	2005/05	3,881	34,998	
P0000667	Kahe Sewer System Upgrade	2005/04	183,316	761,012	Due to changed regulations
P0000676	K2 Opacity Monitor Upgrade	2005/01	0	129,204	
P0000680	Waiau Waste Oil Recover	2006/01	0	86,549	
P0000719	Kahe Fire Line for Wtr Tank	2002/10	10,831	782	
P0000786	Kahe 1 BW Sump Upgrade	2005/04	100,819	65,022	
P0000788	Kahe 2 BW Sump Upgrade	2005/05	69,682	44,441	
P0000789	Kahe 3 BW Sump Upgrade	2005/06	105,007	58,194	
P0000790	Kahe 4 BW Sump Upgrade	2005/07	61,762	60,841	
P0000791	Kahe 5 BW Sump Upgrade	2005/08	69,431	52,226	
P0000792	Kahe 6 BW Sump Upgrade	2005/09	58,698	42,024	
P0000805	Kahe Intake Lighting	2005/10	0	136,708	
P0000871	Kahe 1 Sootblower Controls	2005/09	0	236,819	
P0000872	Kahe 3 Sootblower Controls	2006/08	0	14,075	
P0000873	Kahe 2 Sootblower Controls	2005/09	20,638	109,451	
P0000874	Kahe 4 Sootblower Controls	2006/04	0	166,194	
P0000875	Honolulu 8 Sootblower Ctrls	2006/11	0	4,853	
P0000909	Kahe 13-14 FT Berm Upgrade	2004/09	205,718	18,179	
P0000910	Kahe 11-12 FT Berm Upgrade	2004/09	176,127	0	
P0000943	Honolulu Boiler Wash sump	2005/06	0	393,216	
P0000993	Kahe/Waiau WWTF PLC Upgrade		0	154,204	
P9401000	Kahe Fire Pump Inst	2004/06	462,528	5,916	
WO #					
P1870000	PE001450 Iwilei Tankfarm Foam System	2004/12	8,000	0	
	PE000695 Waiau Diesel Fire Pump Tank	2004/09	1,036	0	
	PE000787 Waiau Tank Farm Firewater Loop Tie-In	2004/09	2,062	0	
	PE001139 W3 Opacity Monitor	2004/09	6,928	0	
	PE001205 W7 Emergency Caustic Feed Eyewash/Showe	2004/09	1,500	0	
	PE000836 K1-4 Stack Lighting Improvements	2004/12	20,000	0	
	PE000839 K6 Stack Lighting Improvements	2004/09	2,319	0	
	PE001260 K6 CEMS Capability Upgrade	2004/09	35,807	0	

B1429000_PP035070 WML WWF Skimmer Shaft & Housing

O&M Expense - LABOR
Compliance with Regulations & Safety
2004 & 2005

Acct Blk			Test Year	
Descr	*RA #	Resp Area	Actual 2004	2005
Prod Oper	PBT	Structural	\$1,600	\$0
Prod Oper	PFS	Corporate Safety	\$917	\$0
Prod Oper	PIA	Admin-PS Services	\$70	\$0
Prod Oper	PIB	Admin-PS O&M	\$59,829	\$149,587
Prod Oper	PIL	Kahe Stn Maint	\$2,066	\$0
Prod Oper	PIN	Honolulu Stn Maint	\$1,106	\$0
Prod Oper	PIP	Planning	\$3,823	\$0
Prod Oper	PIT	Traveling Maintenance	\$12,525	\$0
Prod Oper	PIX	Waiau Stn Maint	\$29,341	\$0
Prod Oper	PJA	Admin-Environ	\$111,658	\$160,738
Prod Oper	PJB	Air Quality & Noise	\$127,274	\$202,766
Prod Oper	PJC	Chemistry	\$125,424	\$204,376
Prod Oper	PJW	Water & Haz Mat	\$199,525	\$167,311
Prod Oper	PNC	Legal	\$144	\$0
Prod Oper	PNG	EnergyProjects	\$870	\$0
Prod Oper	PRX	Construction Mgt	\$1,285	\$0
Prod Oper	PVL	Electric & Welding Svcs	\$265	\$0
Prod Oper	PYM	PP Mechanical Engr	\$1,060	\$0
Prod Oper Total			<u>\$678,782</u>	<u>\$884,778</u>
Prod Maint	PIN	Honolulu Stn Maint	\$3,377	\$0
TOTAL			<u>\$682,159</u>	<u>\$884,778</u>

PJW RA:
Included in \$167,311 for
Test Year 2005 is \$2,825
that is directly attributable to
changed regulations.

PIN RA:
\$3,377 incurred in 2004 is
directly attributable to
changed regulations.

O&M Expense - NON-LABOR
Compliance with Regulations & Safety
2004 & 2005

Acct Blk			Actual	Test Year
Descr	*RA #	Resp Area	2004	2005
Prod Oper	PBT	Structural	\$1,415	\$0
Prod Oper	PEZ	ISD Chargeback	\$68,030	\$84,060
Prod Oper	PFS	Corporate Safety	\$2,411	\$0
Prod Oper	PIA	Admin-PS Services	\$23	\$0
Prod Oper	PIB	Admin-PS O&M	\$28,902	\$77,344
Prod Oper	PIH	Honolulu Stn Oper	\$6,194	\$6,600
Prod Oper	PIK	Kahe Stn Oper	\$12,388	\$22,800
Prod Oper	PIL	Kahe Stn Maint	\$57,344	\$129,004
Prod Oper	PIN	Honolulu Stn Maint	\$119,809	\$94,000
Prod Oper	PIO	Operations Admin	\$139,000	\$284,600
Prod Oper	PIP	Planning	\$3,088	\$0
Prod Oper	PIT	Traveling Maintenance	\$13,482	\$0
Prod Oper	PIW	Waiau Stn Oper	\$12,388	\$12,600
Prod Oper	PIX	Waiau Stn Maint	\$294,485	\$164,000
Prod Oper	PJA	Admin-Environ	\$40,412	\$129,435
Prod Oper	PJB	Air Quality & Noise	\$336,389	\$1,140,454
Prod Oper	PJC	Chemistry	\$122,388	\$197,670
Prod Oper	PJW	Water & Haz Mat	\$127,146	\$398,337
Prod Oper	PNC	Legal	\$26	\$0
Prod Oper	PNG	EnergyProjects	\$254	\$0
Prod Oper	PRX	Construction Mgt	\$971	\$0
Prod Oper	PVL	Electric & Welding Svcs	\$238	\$0
Prod Oper	PVM	PD Mechanical Svcs	\$234	\$0

PJW RA:
Included in \$398,337 for
Test Year 2005 is \$206,094
that is directly attributable to
changed regulations.

Prod Oper Total

\$1,387,177 \$2,740,904

Prod Maint PIN Honolulu Stn Maint

\$27,582 \$285,000

PIN RA:
2004 & 2005 Amounts are
directly attributable to
changed regulations.

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(i) The program's existence and purpose; and

(ii) How to learn the location of underground pipelines before excavation activities are begun.

(3) Provide a means of receiving and recording notification of planned excavation activities.

(4) If the operator has buried pipelines in the area of excavation activity, provide for actual notification of persons who give notice of their intent to excavate of the type of temporary marking to be provided and how to identify the markings.

(5) Provide for temporary marking of buried pipelines in the area of excavation activity before, as far as practical, the activity begins.

(6) Provide as follows for inspection of pipelines that an operator has reason to believe could be damaged by excavation activities:

(1) *Check valve* means a valve that permits fluid to flow freely in one direction and contains a mechanism to automatically prevent flow in the other direction.

(2) *Remote control valve* or *RCV* means any valve that is operated from a location remote from where the valve is installed. The RCV is usually operated by the supervisory control and data acquisition (SCADA) system. The linkage between the pipeline control center and the RCV may be by fiber optics, microwave, telephone lines, or satellite.

High consequence area means:

(1) A *commercially navigable waterway*, which means a waterway where a substantial likelihood of commercial navigation exists;

(2) A *high population area*, which means an urbanized area, as defined and delineated by the Census Bureau, that contains 50,000

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(2) Category 2 includes pipelines existing on May 29, 2001, that were owned or operated by an operator who owned or operated less than 500 miles of pipeline subject to this part.

(3) Category 3 includes pipelines constructed or converted after May 29, 2001.

(b) *What program and practices must operators use to manage pipeline integrity?* Each operator of a pipeline covered by this section must:

(1) Develop a written integrity management program that addresses the risks on each segment of pipeline in the first column of the following table not later than the date in the second column:

Pipeline	Date
Category 1	March 31, 2002.
Category 2	February 18, 2003.
Category 3	1 year after the date the pipeline begins operation.

(2) Include in the program an identification of each pipeline or pipeline segment in the first column of the following table not later than the date in the second column:

Pipeline	Date
Category 1	December 31, 2001.
Category 2	November 18, 2002.

(i) This section specifies otherwise; or

(ii) The operator demonstrates that an alternative practice is supported by a reliable engineering evaluation and provides an equivalent level of public safety and environmental protection.

(c) *What must be in the baseline assessment plan?* (1) An operator must include each of the following elements in its written baseline assessment plan:

(i) The methods selected to assess the integrity of the line pipe. An operator must assess the integrity of the line pipe by any of the following methods. The methods an operator selects to assess low frequency electric resistance welded pipe or lap welded pipe susceptible to longitudinal seam failure must be capable of assessing seam integrity and of detecting corrosion and deformation anomalies.

(A) Internal inspection tool or tools capable of detecting corrosion and deformation anomalies including dents, gouges and grooves;

(B) Pressure test conducted in accordance with subpart E of this part; or

(C) Other technology that the operator demonstrates can provide an equivalent understanding of the condi-

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If the pipeline is:	Then complete baseline assessments not later than the following date according to a schedule that prioritizes assessments:	And assess at least 50 percent of the line pipe on an expedited basis, beginning with the highest risk pipe, not later than:
Category 1	March 31, 2008	September 30, 2004.
Category 2	February 17, 2009	August 16, 2005.
Category 3	Date the pipeline begins operation	Not applicable.

(2) *Prior assessment.* To satisfy the requirements of paragraph (c)(1)(i) of this section for pipelines in the first column of the following table, operators may use integrity assessments conducted after the date in the second column if the integrity assessment was

assessment (see paragraphs (d)(1) and (j)(3) of this section). An operator must base the assessment schedule on all risk factors that reflect the risk conditions on the pipeline segment. The factors an operator must consider include,

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(3) An analysis that integrates all available information about the integrity of the entire pipeline and the consequences of a failure (see paragraph (g) of this section);

(4) Criteria for remedial actions to address integrity issues raised by the assessment methods and information analysis (see paragraph (h) of this section);

(5) A continual process of assessment and evaluation to maintain a pipeline's integrity (see paragraph (j) of this section);

(6) Identification of preventive and mitigative measures to protect the high consequence area (see paragraph (i) of this section);

(7) Methods to measure the program's effectiveness (see paragraph (k) of this

assessment or information analysis. In addressing all conditions, an operator must evaluate all anomalous conditions and remediate those that could reduce a pipeline's integrity. An operator must be able to demonstrate that the remediation of the condition will ensure that the condition is unlikely to pose a threat to the long-term integrity of the pipeline. A reduction in operating pressure cannot exceed 365 days without an operator taking further remedial action to ensure the safety of the pipeline. An operator must comply with § 195.422 when making a repair.

(2) *Discovery of condition.* Discovery of a condition occurs when an operator has adequate information about the condition to determine that the condition presents a potential threat to the

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reference, see § 195.3). An operator must treat the following conditions as immediate repair conditions:

(A) Metal loss greater than 80% of nominal wall regardless of dimensions.

(B) A calculation of the remaining strength of the pipe shows a predicted burst pressure less than the established maximum operating pressure at the location of the anomaly. Suitable remaining strength calculation methods include, but are not limited to, ASME/ANSI B31G ("Manual for Determining the Remaining Strength of Corroded Pipelines" (1991) or AGA Pipeline Research Committee Project PR-3-805 ("A Modified Criterion for Evaluating the Remaining Strength of Corroded Pipe" (December 1989)). These documents are incorporated by reference and are available at the addresses listed in § 195.3.

less than NPS 12) that affects pipe curvature at a girth weld or a longitudinal seam weld.

(B) A dent located on the top of the pipeline (above 4 and 8 o'clock position) with a depth greater than 2% of the pipeline's diameter (0.250 inches in depth for a pipeline diameter less than NPS 12).

(C) A dent located on the top of the pipeline with a depth greater than 6% of the pipeline's diameter.

maintaining strength calculation methods include, but are not limited to, ASME/ANSI B31G ("Manual for Determining the Remaining Strength of Corroded Pipelines" (1991) or AGA Pipeline Research Committee Project PR-3-805 ("A Modified Criterion for Evaluating the Remaining Strength of Corroded Pipe" (December 1989)). These documents are incorporated by reference and are available at the addresses listed in § 195.3.

(C) A dent located on the top of the

the pipeline with a depth greater than 6% of the pipeline's diameter.

(D) A calculation of the remaining strength of the pipe shows an operating pressure that is less than the current established maximum operating pressure at the location of the anomaly. Suitable remaining strength calculation methods include, but are not limited to, ASME/ANSI B31G ("Manual for Determining the Remaining Strength of Corroded Pipelines" (1991)) or AGA Pipeline Research Committee Project

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the high consequence area? (1) *General requirements.* An operator must take measures to prevent and mitigate the consequences of a pipeline failure that could affect a high consequence area. These measures include conducting a risk analysis of the pipeline segment to identify additional actions to enhance public safety or environmental protection. Such actions may include, but are not limited to, implementing damage prevention best practices, better monitoring of cathodic protection where corrosion is a concern, establishing shorter inspection intervals, installing EFRDs on the pipeline segment, modifying the systems that monitor pressure and detect leaks, providing additional training to personnel on response procedures, conducting drills with local emergency responders and adopting other management controls.

(2) *Risk analysis criteria.* In identifying the need for additional preventive and mitigative measures, an operator must evaluate the likelihood of a pipeline release occurring and how a release could affect the high consequence area. This determination must consider all relevant risk factors, including, but not limited to:

(i) Terrain surrounding the pipeline segment, including drainage systems such as small streams and other smaller waterways that could act as a conduit to the high consequence area;

(ii) Elevation profile;

(iii) Characteristics of the product transported;

(iv) Amount of product that could be released;

(v) Possibility of a spillage in a farm field following the drain tile into a waterway;

(vi) Ditches along side a roadway the pipeline crosses;

(vii) Physical support of the pipeline segment such as by a cable suspension bridge;

(viii) Exposure of the pipeline to operating pressure exceeding established maximum operating pressure.

(3) *Leak detection.* An operator must have a means to detect leaks on its pipeline system. An operator must evaluate the capability of its leak detection means and modify, as necessary, to protect the high consequence area. An operator's evaluation must, at

least, consider, the following factors—length and size of the pipeline, type of product carried, the pipeline's proximity to the high consequence area, the swiftness of leak detection, location of nearest response personnel, leak history, and risk assessment results.

(4) *Emergency Flow Restricting Devices (EFRD).* If an operator determines that an EFRD is needed on a pipeline segment to protect a high consequence area in the event of a hazardous liquid pipeline release, an operator must install the EFRD. In making this determination, an operator must, at least, consider the following factors—the swiftness of leak detection and pipeline shutdown capabilities, the type of commodity carried, the rate of potential leakage, the volume that can be released, topography or pipeline profile, the potential for ignition, proximity to power sources, location of nearest response personnel, specific terrain between the pipeline segment and the high consequence area, and benefits expected by reducing the spill size.

(j) *What is a continual process of evaluation and assessment to maintain a pipeline's integrity?* (1) *General.* After completing the baseline integrity assessment, an operator must continue to assess the line pipe at specified intervals and periodically evaluate the integrity of each pipeline segment that could affect a high consequence area.

(2) *Evaluation.* An operator must conduct a periodic evaluation as frequently as needed to assure pipeline integrity. An operator must base the frequency of evaluation on risk factors specific to its pipeline, including the factors specified in paragraph (e) of this section. The evaluation must consider the results of the baseline and periodic integrity assessments, information analysis (paragraph (g) of this section), and decisions about remediation, and preventive and mitigative actions (paragraphs (h) and (i) of this section).

(3) *Assessment intervals.* An operator must establish intervals not to exceed five (5) years for continually assessing the line pipe's integrity. An operator must base the assessment intervals on the risk the line pipe poses to the high

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consequence area to determine the priority for assessing the pipeline segments. An operator must establish the assessment intervals based on the factors specified in paragraph (e) of this section, the analysis of the results from the last integrity assessment, and the information analysis required by paragraph (g) of this section.

(4) *Variance from the 5-year intervals in limited situations—(i) Engineering basis.* An operator may be able to justify an engineering basis for a longer assessment interval on a segment of line pipe. The justification must be supported by a reliable engineering evaluation combined with the use of other technology, such as external monitoring technology, that provides an understanding of the condition of the line pipe equivalent to that which can be obtained from the assessment methods allowed in paragraph (j)(5) of this section. An operator must notify OPS 270 days before the end of the five-year (or less) interval of the justification for a longer interval, and propose an alternative interval. An operator must send the notice to the address specified in paragraph (m) of this section.

(ii) *Unavailable technology.* An operator may require a longer assessment period for a segment of line pipe (for example, because sophisticated internal inspection technology is not available). An operator must justify the reasons why it cannot comply with the required assessment period and must also demonstrate the actions it is taking to evaluate the integrity of the pipeline segment in the interim. An operator must notify OPS 180 days before the end of the five-year (or less) interval that the operator may require a longer assessment interval, and provide an estimate of when the assessment can be completed. An operator must send a notice to the address specified in paragraph (m) of this section.

(i) Internal inspection tool or tools capable of detecting corrosion and deformation anomalies including dents, gouges and grooves;

(ii) Pressure test conducted in accordance with subpart E of this part; or

(iii) Other technology that the operator demonstrates can provide an equivalent understanding of the condition of the line pipe. An operator choosing this option must notify OPS 90 days before conducting the assessment, by sending a notice to the address or facsimile number specified in paragraph (m) of this section.

(k) *What methods to measure program effectiveness must be used?* An operator's program must include methods to measure whether the program is effective in assessing and evaluating the integrity of each pipeline segment and in protecting the high consequence areas. See Appendix C of this part for guidance on methods that can be used to evaluate a program's effectiveness.

(l) *What records must be kept?* (1) An operator must maintain for review during an inspection:

(i) A written integrity management program in accordance with paragraph (b) of this section.

(ii) Documents to support the decisions and analyses, including any modifications, justifications, variances, deviations and determinations made, and actions taken, to implement and evaluate each element of the integrity management program listed in paragraph (f) of this section.

(2) See Appendix C of this part for examples of records an operator would be required to keep.

(m) *Where does an operator send a notification?* An operator must send any notification required by this section to the Information Resources Manager, Office of Pipeline Safety, Research and

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Ref: Environmental Protection Agency Regulation 316 (b) Intake Structure Regulation.

Please provide the following:

- a. A copy of the noted regulation;
- b. A copy of all plans and studies undertaken to-date to respond to enacted regulation;
- c. The construction investment budgeted by month, by NARUC account associated with compliance for each month of the 2005 test year;
- d. The actual construction investment by month, by NARUC account associated with compliance for each month available to-date since enactment;
- e. The actual operation and maintenance expense incurred by month, by NARUC account for each month available since enactment of the regulation; and
- f. The budgeted operation and maintenance expense by month, by NARUC account for each month of the 2005 test year.

HECO Response:

- a. Due to the voluminous nature of regulation 316(b), one copy will be provided as Attachment 1 (229 pages) to the Consumer Advocate and the Public Utilities Commission under separate transmittal.
- b. Copies of all plans and studies undertaken to date are provided on pages 3 to 38 to this response. This includes consultant's (EPRI Solutions) proposal and implementation schedule.
- c. There is no construction-related investment budget proposed for 2005 at this time.

Currently, efforts to comply with 316(b) regulations are to develop a cost effective compliance strategy, develop and implement a monitoring plan, and conduct preliminary assessment of alternative technological and/or operational measures for compliance. After studies are completed in approximately three years, a determination will be made if capital

expenditures for engineering controls will be required. Construction of such controls may commence in 2008.

- d. Not available at this time. See response to (c) above.
- e. There were no outside services incurred during 2004. HECO O&M labor to track and interpret 316(b) rules and solicit/negotiate consultant proposals were mainly covered under ABM Activity 876 and is not discernible from other water related O&M charges. A separate tracking account was established to track 316(b) implementation costs/charges for 2005 and beyond.
- f. Commencing in February 2005, a separate tracking account was established to track 316(b) implementation costs/charges for 2005 and beyond.

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July 15, 2004

Mr. Kirk Tomita
HECO

via electronic mail

Subject: **RFP for 316(b) Compliance Support for HECO**

Dear Kirk:

We are very pleased to enclose our proposal for providing 316(b) Compliance Support for three of HECO's facilities, Kahe, Waiau and Honolulu. We have provided prices as requested for our Options 3. EPRI Solutions in partnership with Alden Research Laboratories and ASA has assembled a unique and deeply experienced team that has been actively engaged in the 316(b) rule development, conducted many preliminary assessments for facilities based on the proposed rule, and now is providing strategic compliance planning assessments based on the final 316(b) Phase II regulations. As we submit this proposal for your consideration, we would like to make the following points:

1. Our scope of work is based on our recent experience in performing exactly the type of compliance efforts that HECO needs for numerous other utility companies. We have worked at over 80 power plants located throughout the U.S. on all waterbody types. Our clients have found that our approach meets all of their 316(b) compliance needs.
2. Our price, which we believe to be very competitive, is based on a realistic assessment of the complexity of the proposed rule and the steps that will best meet your strategic and financial goals. In addition, HECO TC funds can be used for this work although it is our understanding you have elected not to use them for this project.
3. The work you have requested offers a thoughtful and systematic compliance assessment approach and provides HECO an excellent opportunity to reduce future compliance costs. We fully intend to work with you and your staff to make use of the depth and breadth of HECO's experience to ensure the best possible product.
4. Our team has extensive experience working with regulatory agencies responsible for 316(b) permitting. Through multiple past projects, we have developed solid relationships with federal agency staff and successfully earned their respect. As State regulators continue to increase number of complex compliance options available under the final Phase II Rule, the experience of this team will be an asset to HECO.

Environment Division
1299 4th Street | Ste 307 | San Rafael CA 94901 USA | 415.454.8800 | Fax 415.454.8012

EPRI Solutions, Inc., a SUBSIDIARY OF EPRI
3412 Hillview Avenue | Palo Alto CA 94304-1395 USA | 650.855.2000 | Customer Service 800.313.3774 | www.eprisolutions.com

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5. We have full capability to provide HECO with additional services for follow on work that is likely to be required after the assessment studies requested in the current RFP are complete.

We invite your close review of the material submitting: it reflects the dedication of our staff and



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PROPOSAL FOR SERVICES

Project Title:

**316(b) Compliance Strategy for Cooling Water
Intake Structures
(Option 3)**

Proposal 221080

Submitted to:

Hawaiian Electric Company (HECO)

Kirk Tomita

July 15, 2004

Point of Contact:

David Bailey, EPRIsolutions

Telephone: 571-643-2320

Email: dbailey@eprisolutions.com

This proposal contains proprietary information and data that shall not be duplicated, used or disclosed – in whole or in part – for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offer as a result of, or in connection with, the submission of this proposal, the client shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the client's right to use information contained herein if it is available from another source that does not have restrictions with EPRIsolutions regarding use or disclosure.



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1 INTRODUCTION

The Clean Water Act calls for the Environmental Protection Agency (EPA) to establish the best technology available to protect fish, shellfish and other forms of aquatic life. On February 16, 2004, EPA established location, design, construction and capacity standards for cooling water intake structures at large power plants. The EPA Phase II § 316 (b) regulations (Rule) for existing utility intake structures requires all existing power plants that withdraw over 50 MGD of cooling water from a designated water of the United States to meet flexible "best technology available" (BTA) standards.

The Rule requires all existing power plants to reduce impingement losses by 80% to 95% and many facilities to meet entrainment reduction performance standards of 60% to 90%. Optimizing a cor-

EPA's final § 316 (b) Phase II rule requires all existing power plants to meet technology based standards by reducing impingement 80 to 95% and if applicable a requirement to reduce entrainment by 60 to 90%. However, there is considerable flexibility in terms of compliance options.



2 PROJECT DESCRIPTION

Project Need

HECO has requested that the Team perform the initial work required to cost-effectively comply with the Rule by making use of the regulatory flexibility provided by the Rule. Specifically, the Team will develop strategic compliance plans based on alternative fish protection technologies, prepare the Proposal for Information Collection, provide HECO with budget estimates to comply, and complete the Comprehensive Demonstration Study. The preliminary information provided by HECO indicates that Kahe, Waiau, and Honolulu are required to meet both the impingement mortality and entrainment (IM&E) reduction standards.

The facilities to be evaluated in this proposal include:

FACILITY NAME	WATERBODY
Kahe generating station	Pacific Ocean
Waiau generating station	Pearl Harbor, Pacific Ocean
Honolulu generating station	Honolulu Harbor, Pacific Ocean

HECO has 3 facilities subject to 316(b) requirements.

Project Goals

The Team will provide HECO with:

1. **A Cost-Effective Compliance Strategy** – Each facility will be evaluated to develop the most cost-effective §316(b) compliance strategy. The Rule provides a variety of options for achieving compliance, as well as collecting and developing the necessary supporting information. This project will utilize the Rule's flexibility to develop a compliance approach that uses the most cost-effective compliance plan and data collection requirements to support that plan.
2. **A Preliminary Assessment of Technologies and/or Operational Measures** – The Rule is technology based. All of the options require an examination of intake design and operational measures at some level to demonstrate fish and shellfish will be protected in conformance with applicable performance standards. Most of the options require a detailed evaluation of alternative technological and/or operational measures that will allow HECO to determine the feasibility, effectiveness, and cost for of fish protection technologies and/or operational measures for compliance. Because several options include use of restoration as an alternative means of compliance, use of such measures are also considered in the evaluation. The results of this assessment will provide the basis for the overall compliance strategy.
3. **A Proposal for Information Collection** – The first element of the Comprehensive Demonstration Study (CDS) is the Proposal for Information Collection (PIC). This proposal must be submitted prior to initiation of on-site studies. The Team will assist HECO in developing the information to satisfy the requirements of the PIC.
4. **Regulatory Agency Negotiation Support** – The Team will support HECO in meetings with the State permitting authority and other appropriate resource agencies to discuss the HECO's compliance approach and PIC.
5. **An Estimate of §316(b) Compliance Costs** – We will develop budgetary cost estimates to perform permitting activities subsequent to submission of the PIC, including recommended studies and other components of the Comprehensive Demonstration Study (CDS). The preliminary assessment of tech-

This work will provide HECO with:

- A Cost-Effective Compliance Strategy.
- A Preliminary Assessment of Technologies and/or Operational Measures.
- An Estimate of 316(b) Compliance Costs.
- Agency Negotiation Support (optional)

and will address the following EPA requirements:

- Best Professional Judgment Analysis (BPJ) of alternative fish protection options
- Identify opportunities for credit against the Calculation Baseline
- Reveal options for the Impingement Mortality and Entrainment Characterization Study (IM&E)
- Provide information to develop the Proposal for Information Collection (PIC)



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nologies and/or operational measures, as well as restoration measures will provide HECO with an estimate of the approximate cost for each compliance option.



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Methodology

The approach used in this proposal allows HECO to complete all necessary work for cost-effective strategy planning and budgeting. This work will be implemented through the six (6) tasks discussed below.

Task 1 – Review of Facility Information and Site Visits

The main focus of Task 1 will be to understand the site-specific conditions of each facility through a preliminary review of the available facility information and a site visit. The task will consider the current intake configuration, operation and maintenance. Any fish protection technologies or operational measures currently being used to reduce impingement mortality and entrainment will be evaluated to determine whether credit is available to at least partially meet the Rule's performance standards. This task will also include a review of available data on the source waterbody, the fish and shellfish community in the vicinity of the plant intake,

Our condensed methodology includes six (6) main Tasks:

- Review facility information and visit sites.
- Conduct preliminary assessment of technologies and operational measures.
- Prepare Strategic Compliance Plan.
- Prepare PIC.
- Report results.
- Support agency meetings and communica-



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Prior to the site visits, HECO will provide the key information listed below for review. A detailed checklist of all the information required from HECO is provided in the Supplement section of this proposal. We assume that all data listed in the detailed checklist will be available for each facility at the start of Task 1. The general categories of information required are:

- 1) Information Provided to EPA to Support Their Phase II Rule Development
- 2) Circulating Water System
- 3) Cooling Water Intake Structure
- 4) Circulating Water Pumps
- 5) Condenser Data
- 6) Facility Operations
- 7) Biological Data
- 8) Restoration Data

In order to maximize Task 1, each facility will need to provide information on the following topics:

- Information Provided to EPA to Support Their Phase II Rule Development
- Circulating Water System
- Cooling Water Intake Structure (CWIS)
- Circulating Water Pumps
- Condenser Data
- Facility Operations
- Biological Data

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(IM&E) reduction. These include coarse or fine mesh Ristroph traveling screens, coarse or fine mesh wedgewire screens, artificial filter barriers, and barrier nets. In addition, the Team will evaluate technologies that might meet the performance standards but were not identified by EPA. The results of Task 2 will be summarized in a confidential letter to HECO.

The "Best Professional Judgment" (BPJ) analysis presented in this letter will be adequate for:

- assessing potential use of the Cost-Cost test for requesting a site-specific determination of BTA, by providing engineering cost estimates for feasible technologies and comparing them to the costs EPA considered when formulating the Rule (Appendix A and B);
- providing the cost basis for consideration of using the Cost-Benefit test as a basis for requesting a site-specific determination of BTA;
- provide the engineering information to support that technologies and/or operational measures are less feasible, cost effective or environmentally desirable than use of restoration;
- identifying alternative cost-effective technology or operational measures for complying with the Rule, including use of the "fast track" compliance option;
- being included in a PIC as a basis for identifying the technologies and or operational measures to be evaluated.

Costs for the technology alternatives will be based on Alden's database for installation of intake technologies at similar projects.

The information developed in Task 2 is critical to the development of a Strategic Compliance Strategy as well as the PIC.

Task 3 – Develop Strategic Compliance Plan

The §316(b) Phase II Rule provides facilities with flexibility for achieving compliance and providing the necessary information to support the CDS. Information provided by HECO, the site visit, and the results of the analysis of alternative fish protection technologies and/or operational measures in Task 2 will be used as a basis for developing the Strategic Compliance Plan. The plan will consider all of the compliance options, identify opportunities for

The information developed in Task 2 is critical to developing a Strategic Compliance Strategy and the EPA required Proposal for Information Collection (PIC), and will supply a Best Professional Judgment (BPJ) analysis as to the feasibility, effectiveness, and cost of alternative fish protection technologies.

The goal of Task 3 is to develop a customized Strategic Compliance Plan that maximizes the flexible options for complying with the 316(b) rule.



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credit against the "calculation baseline" and cost effective approaches for the "IM&E Characterization Study". The Strategic Compliance Plan for each facility will consider the following aspects of the Rule:

- **Five options for compliance:**

1. Demonstrating flows commensurate with wet closed-cycle cooling or a maximum design intake through-screen velocity of 0.5 ft/sec for impingement.
2. Demonstrating that technologies, operational measures, and/or restoration measures have been implemented to meet the performance standards.
3. Proposing installation of technologies, operational measures, and/or restoration measures that will meet the performance standards.
4. Proposing use of EPA-approved design and construction technology.

- **The technologies and/or operational measures identified**

The Strategic Compliance Plan will address the fish protection technologies and/or operational measures identified in Task 2 and their associated effectiveness and estimated costs. It will also address the results of a Cost-Cost Test using EPA cost estimates for the facility, as provided in Appendices A and B of the Rule.

- **Use of restoration measures**

The strategic evaluation will consider the use of restoration measures as the sole means of compliance or in combination with other compliance options, unless this option is eliminated as a result of litigation of the Rule regarding the use of restoration for compliance.

- **Use of the Cost-Benefit Test**

Based on the estimated biological benefits and the costs derived for each of the alternative fish protection technologies developed in Task 2, the compliance plan will evaluate use of the cost-benefit test. Even if existing IM&E data are available, the evaluation will consider recommendations and associated costs for collection of the necessary information to fully evaluate the Cost-Benefit approach.

- **Options for demonstrating compliance:**

1. Demonstrating compliance with the performance standards
2. Demonstrating compliance with the Technology Design and Construction Plan and the Technology Installation and Operation Plan.

The strategic compliance plan will identify any information gaps that must be addressed to reduce uncertainty associated with the use of cost-effective technology and/or operational measures and/or use of restoration measures. The plan will recommend the nature of biological and/or technology evaluation studies that should be considered for inclusion in the PIC.

A draft compliance plan will be prepared for review and comment. Based on HECO'S comments, a final compliance plan document will be prepared for each facility.

The Strategic Compliance Plan will identify the most cost effective compliance strategy utilizing the technologies, operational options, and restoration measures appropriate for each of HECO's facilities.



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The strategic compliance plan will include cost estimates and multi-year budgets to:

- 1) Implement technology and/or operational measures needed to meet the selected compliance alternative as developed in Task 2;
- 2) Prepare and Implement the Comprehensive Demonstration Study Plan as recommended in Task 3;
- 3) Implement the Verification Monitoring Plan; and,
- 4) Meet the record keeping and reporting requirements.

The strategic plan will also provide a multi-year schedule to implement the §316(b) requirements based on the strategic compliance plan. First, a general schedule for overall compliance will be



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ods to be used, methods used in other studies in the
source waterbody, a description of the study area (in-
cluding area of influence of the CWIS) and taxonomic
identifications for all life stages and species of fish and
aquatic invertebrates.

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- ties, state and federal agencies. There are existing databases of sportfish values that can be accessed that may focus the search.
- 5.) Use available information on prices and commercial harvests to make an assessment of the potential for lost profits to commercial fishermen. In general, the USEPA procedure of using some percentage of lost revenue (0-40 %) will be followed.
 - 6.) Determine the extent of losses to consumers of commercially harvested fish. This will entail use of an existing study or using available data to obtain a demand or inverse demand function.
 - 7.) Using information obtain in 1.) - 6.) determine the likely range of losses associated with each species.

While non-use values are not expected to be proposed, however, if required by the NPDES permitting authority the process will involve:

- 1) Determine, in conjunction with state and federal officials, the likelihood that any change will result in increase numbers of ecological keystone, rare, or sensitive species, increase numbers of exotic or disruptive species, lessen disruption of ecological niches and ecological strategies used by aquatic species, increase local biodiversity, lessen disruption of predator-prey relationships, lessen disruption of age class structures of species or reduce public satisfaction with a healthy ecosystem.
- 2) If there is a strong likelihood that changes will create significant changes described in B. 1.), then a strategy to interject the economic consequences of the changes into the benefit-cost analysis must be pursued.
- 3) Although EPA did not present any acceptable appli



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will be presented. This will show the costs per saved organism (or similar metric) for various technologies that may not be as costly as the closed-cycle cooling approach.

Our initial PIC benefits valuation method pricing is based on the assumption that use values only will be required.

Presuming that the cost/benefit approach is deemed appropriate, an onsite examination of the fishing area is proposed late in the implementation stage. By speaking with anglers and developing a decent knowledge of the local circumstances, we can adequately assess whether an existing study is relevant. Moreover, an examination will make contact with plant personnel who may know of gray literature that would be useful. They will also know whether our information is in concert with their general beliefs about the circumstances. If it is necessary to do sampling of fishermen, this visit will help determine the best study design.

The overall PIC will be prepared in a manner that fully conforms to the requirements in the Rule and consistent with the strategic compliance plan developed in Task 3. In developing the PIC, every effort will be made to maximize use of existing data, recognizing that biological sampling is the most costly component of the CDS. However, the plan will consider the establishment of a cal-



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The presentation, at the direction of HECO, will include a summary of the §316(b) Phase II Rule, a summary of the compliance approach (based on the Strategic Compliance Plan developed in Task 3), and a summary of the PIC. The cost estimate for this task is based on a one-day meeting, time for preparation of the presentation, and a two-week notice prior to meeting with the State in order to ensure low cost airfares for travel to the meeting.

Deliverables

There are four primary deliverables for this work:

1. **A “Preliminary Assessment of Fish Protection Technologies and Operational Measures” based on the results of Task 2.** The engineering assessment is limited to a 4–6 page letter report with a table listing the feasibility, effectiveness, and cost of the fish protection technologies and/or operational measures that could be used to meet the performance standards. The potential for each technology or operation measure to meet the appropriate performance standards will be evaluated. While this document would not meet the standard for use in the CDS, it is entirely adequate for the purpose of developing the strategic cost-effective compliance plan. It is also suitable to serve as the basis for identification of the technologies and/or operational measures to be evaluated in the PIC. Development of the complete technology and operational assessment report is deferred to a later date. The cost for completing a full engineering assessment is identified in the cost estimates to implement the PIC and prepare the CDS.
2. **A “Strategic §316(b) Compliance Plan” based on the results of Tasks 2 and 3.** This document will also contain estimates of costs for completion of the CDS and a preliminary estimate of potential compliance costs based on the Strategic Compliance Plan and PIC. This report will include information on the steps and costs to complete monitoring and reporting requirements.
3. **A PIC for submittal to the NPDES permitting authority.**
4. **A Microsoft PowerPoint® presentation as discussed in the optional Task 6.**

For each of the above, a draft report/document will be submitted to HECO personnel for review, and all comments received will be incorporated into the final report and presentation.

This work will provide HECO with the following important deliverables:

- An Assessment of Fish Protection Technologies and Operational Measures.
- A Strategic 316(b) Compliance Plan with budget forecasts for studies, reporting and compliance.
- A Proposal for Information Collection.
- An optional presentation to agencies.



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3

PROBLEM STATEMENT



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ASA staff have conducted §316(b)-related studies at more than 35 power plants throughout the country, and each senior ASA staff member has more than 25 years of continuous experience in such studies. These studies include three of the most complex §316(b) assessments conducted anywhere (Salem Generating Station, Diablo Canyon Power Plant, and Hudson River Utilities). Ongoing studies are being conducted for Dynegy, Mirant, Entergy, Consolidated Edison, KeySpan, New York Power Authority, Public Service Electric and Gas, and Pacific Gas and Electric, all of which include site-specific quantitative modeling of the biological benefits of intake alternatives.



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Team Roles and Responsibilities

Our Team is fully committed to our projects and we provide the essential elements to ensure their successful outcome. For all our projects, we commit the services of our most qualified engineering, scientific, and management professionals. We are confident in our ability to provide our clients with the expertise necessary to best serve their needs. This expertise is illustrated in the Team members selected for this project.

The specific skills, experience, and project roles of each of our key Team members are summarized below. Full resumes of these experts are included in Appendix C.

Dave Bailey, EPRI Solutions – Project Manager

Dave Bailey will serve as the Project Manager for this engagement. In this capacity, he will be responsible for all day-to-day project management tasks and communication with both Alden and HECO. He will also direct the team resources, monitor project schedules, and review project deliverables. Mr. Bailey will play a key role in the development and quality assurance of project deliverables and play the lead role in developing the strategic compliance plan for each facility.

Mr. Bailey is uniquely qualified having over 25 years of §316(a) and §316 (b) experience. Mr. Bailey played a leadership role on behalf of industry for the last five years during EPA's §316(b) rulemaking. Serving as Chairman of UWAC's Cooling Systems

OUR PROJECT MANAGER'S RELEVANT EXPERTISE

- 25 years experience in Clean Water Act issues including 316(a) and 316 (b).
- Chair of Utility Water Act Group's Cooling Systems Committee.
- Represented Industry during 316(b) rulemaking.
- Developed one of the first successful barrier net systems.
- Testified at EPA stake-



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projects as an alternative to BTA to satisfy §316(b) requirements and more recently has successfully negotiated a memorandum of understanding to credit production of a company-owned aquaculture facility toward compliance with §316(b) Phase II final regulations. He has published numerous articles on §316(b) in peer-reviewed literature.

Thomas Cook, Alden - Engineer

Mr. Cook will manage the project activities for Alden. Mr. Cook will be assisted by Mr. Nathaniel Olken (Civil Engineer) and Mr. Jonathan Black (Biologist).

As Director of Environmental Engineering, Mr. Cook is responsible for conceptual and detailed design engineering efforts related

**OUR LEAD ENGINEER'S
RELEVANT EXPERTISE**

- Developed deterrent/behavioral devices
- Specializing in economic analysis of fish protec-



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Nathaniel Olken, Alden – Civil Engineer

Mr. Olken will assist Mr. Cook in all engineering tasks. Mr. Olken received his B.S. in Civil Engineering from University of Massachusetts, Amherst. Nate is responsible for analyzing the current structural components of cooling water intakes and determining which technologies will meet the proposed regulations and the costs associated with their application. Mr. Olken contributed technical comments to UWAG and EPRI during the recent EPA rulemaking. His ability to comprehend both technical engineering and biological reports makes him an important member of Alden's §316(b) team.

William Dey, ASA

Mr. William Dey will serve as the manager of all biological study components for ASA, and will be supported by Drs. James McLaren and John Young. Mr. Dey, in particular, will be responsible for the performance of cost-benefit evaluations. Mr. Dey has more than 30 years of experience in the design and analysis of biological monitoring programs to estimate losses resulting from impingement and entrainment at cooling water intake structures. He has personally directed impingement and entrainment monitoring studies and assessments at more than 15 power plants throughout the United States and is currently principal investigator for the development of national guidelines for design of entrainment and impingement monitoring studies, being sponsored by the Electric Power Research Institute.

James McLaren, Senior Scientist (ASA)

Dr. McLaren, along with Dr. Young, will provide support to Mr. Dey, including preparation of impingement and entrainment characterization sampling plans, data analysis, and reporting activities for the impingement and entrainment characterization study. Dr. McLaren has more than 30 years of experience in designing and conducting environmental monitoring studies, including numerous CWA §316(a) and (b) studies for which he has served as technical director, project manager or senior advisor. His extensive experience in Natural Resource Damage Assessments will be used in support of restoration alternative evaluations.

**RELEVANT EXPERTISE OF
SUPPORTING TEAM**

- Biological
- Civil engineering
- Financial analysis



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John R. Young, Senior Scientist/Associate (ASA)

Dr. Young has over 25 years of experience in §316(b) and other environmental issues, both as a consultant and an employee of the electric utility industry. He has been instrumental in the continuing Hudson River §316(b) monitoring programs since the 1970's and is intimately familiar with current issues and practices of §316(b) permitting. Through participation in UWAG and EPRI efforts, he has helped coordinate the industry response to environmental regulations involving §316(b), pesticides, electromagnetic fields, dredging, transmission corridor management wetlands and

**ALDEN***Solving Flow Problems Since 1894***Other Key Team Members Available As Needed:*****Douglas Dixon, Ph.D., EPRI - Manager, Water Quality and Fisheries Research***

Dr. Dixon has over 25 years of professional experience in aquatic ecology, fisheries science, and environmental impact assessment for public and private sector clients. His current professional focus is in fisheries research and the assessment of environmental impacts on aquatic resources from operation of thermal and hydroelectric power plants. Research interests include the early life history (e.g., age, growth, mortality, and recruitment) of migratory fish.

As Manager of the Hydropower Environmental Issues Research Program (instream flows, fish passage and protection, dam removal, ecosystem restoration, and water resource management research), Dr. Dixon provides management and technical support to the Clean Water Act Section 316 (a & b) Fish Protection Issues Research Program (aquatic ecosystem evaluation, ecological risk analysis, fish protection technologies).

Edward P. Taft, Alden – President

Mr. Taft is President of Alden and currently oversees Alden's 316(b) team. He received his B.S. in Biology from Brown University and his M.S. in Biology from Northeastern University. In addition to his role as President, Ned is responsible for Alden's environmental services. He has over 30 years experience in developing and testing fish protection technologies for both cooling water and hydroelectric project intakes. This experience currently places him in a unique position to oversee all aspects of 316(b)-related issues.

Stephen V. Amaral, Alden – Director, Fisheries

Mr. Amaral has extensive experience in the assessment and resolution of fish passage and protection issues at all types of water intakes. This experience has been developed over the past 14 years through the management of laboratory and field evaluations of developing and existing fish passage technologies. Mr. Amaral also performs evaluations of aquatic resource impacts for Federal Energy Regulatory Commission (FERC) Environmental Impact Statements and for meeting Clean Water Act (CWA) Section

Additional experts are available as needed.



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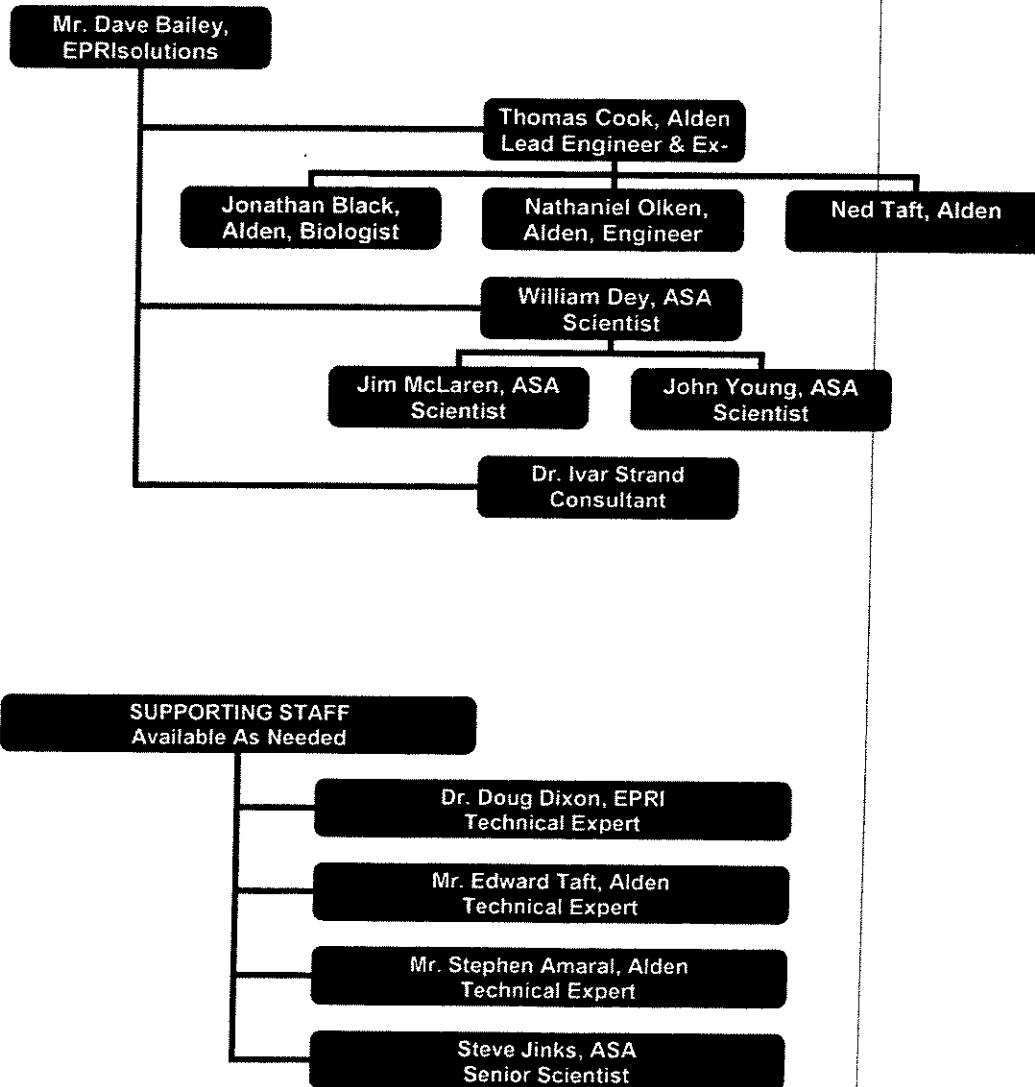
316(b) requirements. Mr. Amaral is the author of several comprehensive reports describing the status of fish passage technologies and he was the lead in the development of a guideline document for turbine entrainment and survival studies. Recent projects that Mr. Amaral has been involved with include overseeing the biological evaluation of a Fish-Friendly Turbine, the development of an entrainment and impingement database for cooling water intakes, estimation of turbine and spillway survival at small hydro plants, a laboratory assessment of wedge-wire screen entrainment and impingement, and an evaluation of estuarine fish responses to behavioral technologies.

Steven M. Jinks, ASA – President

Dr. Jinks is a senior scientist with 30 years of experience supervising and conducting environmental research, field investigations, literature reviews, regulatory analysis, preparation of environmental impact statements and reports, litigation support and expert testimony, and other client services. He spent 21 years as a scientist, project manager, and vice president at EA Engineering, Science and Technology, Inc. where he was involved in dozens of projects involving ecological and human health risk assessment, development of biological monitoring equipment and protocols, and environmental management and restoration. Since establishing ASA Analysis & Communication in 1997, he has consulted extensively on the impacts industrial and municipal high-volume water intakes, including §316(b) demonstrations and alternative technology evaluations.



Organization of Expert Team





4 PRICE & SCHEDULE

Schedule

The schedule for completing the work will be metered by achieving certain milestones and assumes contract signature by July 30, 2004. Delays in contract execution will delay the schedule accordingly. The schedule also assumes a 2 week turnaround with comments to draft documents. Delays in commenting on draft documents will also result in delays to the schedule.

<i>Milestone</i>	<i>Completion Date</i>
Contract Execution	7/30/04
Set date for project kickoff conference call	8/6/04
Hold project kickoff conference call	8/20/04
HECO Provide Information detailed in Task 1	9/20/04
Site visits	10/1/04
Draft Technology Report and Strategic Plan	11/5/04
Comments received on draft strategic plan and technology report	11/19/04
Final Technology Report submitted (Deliverable 1)	12/3/04
Final Strategic Plan submitted (Deliverable 2)	12/17/04
Draft PIC delivered	1/10/05
Comments received on draft PIC	1/24/05
Final PIC delivered (Deliverable 3)	2/7/05
Support for Agency Meetings (Deliverable 4)	To be determined



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Price

The proposal is budgeted on the assumption that all 3 Phase II facilities can be visited over a 2 day period with about one-half day



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5 **TERMS AND CONDITIONS**

The terms in this proposal are valid for a period of 60 days from date of submission.

EPRI solutions standard billable services terms and conditions apply.

This proposal contains proprietary information and data that shall not be duplicated, used or disclosed – in whole or in part – for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offer as a result of, or in connection with, the submission of this proposal, the client shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the client's right to use information contained herein if it is available from another source that does not have restrictions with EPRI solutions regarding use or disclosure.

6 SUPPLEMENTAL INFORMATION

Complete Checklist of Information Needed For Task 1

- 1) Information Provided to EPA to Support Their Phase II Rule Development
 - ☐ Assigned plant code for 308 Questionnaire
 - ☐ Completed (long or short-form) EPA 308 Questionnaire
- 2) Circulating Water System
 - ☐ Project general arrangement/overall site drawings
 - ☐ Piping layout and profile
 - ☐ Hydraulic grade line estimates
 - ☐ Discharge structure drawings
- 3) Cooling Water Intake Structure (CWIS)
 - ☐ Plans and sections showing intake bays, bar racks, traveling screens, and pumps
 - ☐ Details of any existing fish protection features, including fish return troughs/pipes
 - ☐ Debris troughs configuration
 - ☐ CWIS design flows
 - ☐ CWIS actual flows
 - ☐ Water surface elevations
 - ☐ Screen mesh size and geometry
 - ☐ Screen spraywash volumes (high pressure and low pressure)
 - ☐ Screen rotational speeds
 - ☐ Bathymetric data in vicinity of the CWIS
 - ☐ Icing conditions (problem, inspection, and/or maintenance reports)
 - ☐ Sedimentation/dredging issues (problem, inspection, and/or maintenance reports)
 - ☐ Available velocity data (magnitude and direction) upstream of, and in, the CWIS
 - ☐ Debris history (type, time, frequency for screen, and trash rack cleaning)
 - ☐ Any other operational problems
- 4) Circulating Water Pumps
 - ☐ Performance curve
 - ☐ Recent performance data or test results
 - ☐ Design data, specification, configuration drawings
 - ☐ Pumphouse plans and sections
- 5) Condenser Data
 - ☐ Design drawings (general arrangement, steam dome)
 - ☐ Recent performance data
 - ☐ Any significant as-built modifications (such as Taprogge debris filter)
 - ☐ Inlet water temperatures throughout year



6) Facility Operations

- ☐ Facility output (MW)
- ☐ Operating mode (peaking, base load) with information on schedule
- ☐ Facility capacity factor
- ☐ Five years (minimum) of operational data (MW, MWh, and intake flow) that is considered to be representative of the expected plant operation reflecting seasonal variations.
- ☐ Evaluated cost of a MW (capacity and energy) with seasonal variations
- ☐ Estimated remaining facility life

7) Biological Data

- ☐ Existing impingement and entrainment monitoring data (for example, historical 316(b) demonstration studies)
- ☐ Description of biological resources in the vicinity of the CWIS
- ☐ Species to be protected (include threatened or endangered, if appropriate)
- ☐ Life stage occurrence and abundance
- ☐ Diurnal and seasonal differences in species composition or abundance

8) Restoration Data

- ☐ Existing off-site mitigation projects that directly address intake impacts (such as wetland restoration, fish hatchery, artificial reef construction, and other habitat restoration related projects)
- ☐ Major ecological assets (wetlands, shoreline habitat) that could be used/donated to offset CWIS impacts
- ☐ Facility or corporate stewardship programs that can be further developed to meet restoration requirements in EPA's Rule
- ☐ Restoration activities of interest to state and federal resource agencies and tribes in your operating area (for example, is your state agency engaged [or interested] in restoration activities such as wetland restoration or other habitat restoration).

We recognize that, in many cases, not all of the above information will be available. However, as much of the information as possible should be provided. Any critical missing information will be discussed prior to or during the site visit (Task 1).



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Our Comprehensive Methodology

(CWIS) and meet with appropriate client staff. The goal of this visit is to fully understand the CWIS design, operation, and location on the waterbody. The visit is also used to address questions on information required prior to the site visit and to discuss some alternative compliance strategies that will be evaluated.

2. Engineering Assessment of Fish Protection Technologies and Operational Measures – Based on the site visit and discussions with appropriate company/facility our team will begin by evaluating whether each facility can meet the performance standard based on the existing CWIS design, location, construction and operation compared to the Rule's "calculation baseline" set by EPA in the final rule. For example, if a facility has an offshore intake it may be found to be in compliance based on lower offshore fish densities or be able to take substantial credit toward meeting the performance standard. This assessment will involve input from both Alden's engineers and ASA's biological experts. Such assessments are conducted for each facility. If a facility cannot comply based on existing technologies and operational measures Alden will conduct an evaluation of alternative fish protection technologies and operational

PIC will be developed based on the facility compliance plan developed in Step 3. The PIC will include all of the information required including technologies to be evaluated, use of restoration, use of site specific standards, nature of biological information to be used (including detailed study designs for any necessary studies), and a summary of existing biological information.

5. Discussion of Monitoring Plan and Record Keeping and Reporting – Based on client needs the nature of the monitoring plan (Para. 125.96 of the Rule) and record keeping and reports requirements (Para. 125.97 of the Rule) can also be included as part of the strategic assessment. This discussion will focus on the key compliance options identified in the facility plan, since the nature of monitoring plans and record keeping can vary considerably based on the compliance option selected for the facility.
6. Preparation of Cost Estimates to Implement the Compliance Plan and PIC – Based on the strategic compliance plan and PIC, cost estimates will be prepared to assist clients in developing budgets for 316(b) compliance. This cost estimates will include:
 - costs for implementing and operating the technology and/or operational measures that could meet the performance standards
 - costs for biological monitoring (both current levels of impingement mortality and entrainment and verification
 - costs for conducting the benefits valuation using the cost-benefit test.
 - “Costs preparing the Comprehensive Demonstration Study” report based on the strategic compliance plan.

These costs will allow utilities to develop a budget for implementing the compliance plan in 2005 and preliminary budgets for the rest of the compliance process. The budgets for development of the impingement and entrainment baseline calculations, which are anticipated to be conducted in 2006 and 2007, should be considered preliminary since PIC studies are defined as “adaptive” in the Rule. Based on 2005 study results, utilities may want to modify either the PIC or compliance plan based on further evaluation of alternative fish protection technologies and/or operational measures and/or the analysis of historical biological data and the results of 2005 biological studies. Such revisions, if necessary, could result in changes to 2006 and 2007 budget estimates. Budget estimates will be presented in the strategic compliance plan document.

7. Regulatory Support – Clients may want to take advantage of our Teams reputation and experience in meeting with appropriate State and/or Federal NPDES permitting authorities. Such assistance may include educating regulators on 316(b) requirements and providing support for the utility’s overall compliance plan based on Step 3 or the PIC based on Step 4.

The number of steps listed above can be modified to meet a client’s budget needs.